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DEPARTMENT OF THE INTERIOR, CANADA

HON. ARTHUR MEIGHEN, *Minister*. W. W. CORY, *Deputy Minister*

GEODETTIC SURVEY OF CANADA

NOEL OGILVIE, *Superintendent*

PRECISE LEVELLING

CERTAIN LINES IN ONTARIO and QUEBEC

WITH INDEX AND MAP SHOWING ALL
WORK PREVIOUSLY PUBLISHED

PUBLICATION No. 4



OTTAWA

J. DE LABROQUERIE TACHÉ

PRINTER TO THE KING'S MOST EXCELLENT MAJESTY

1919

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By

F. B. REID, *Supervisor of Levelling*

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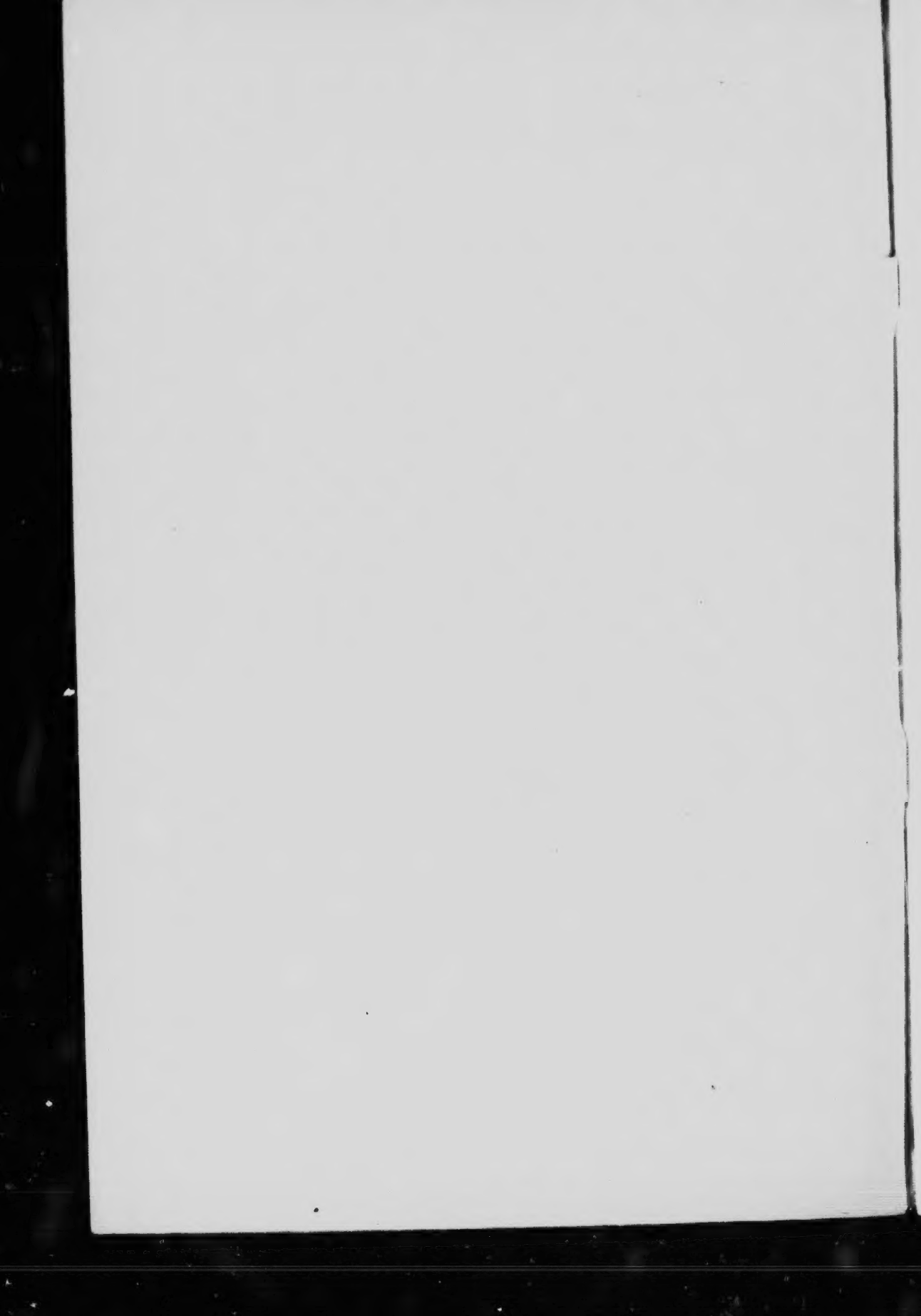


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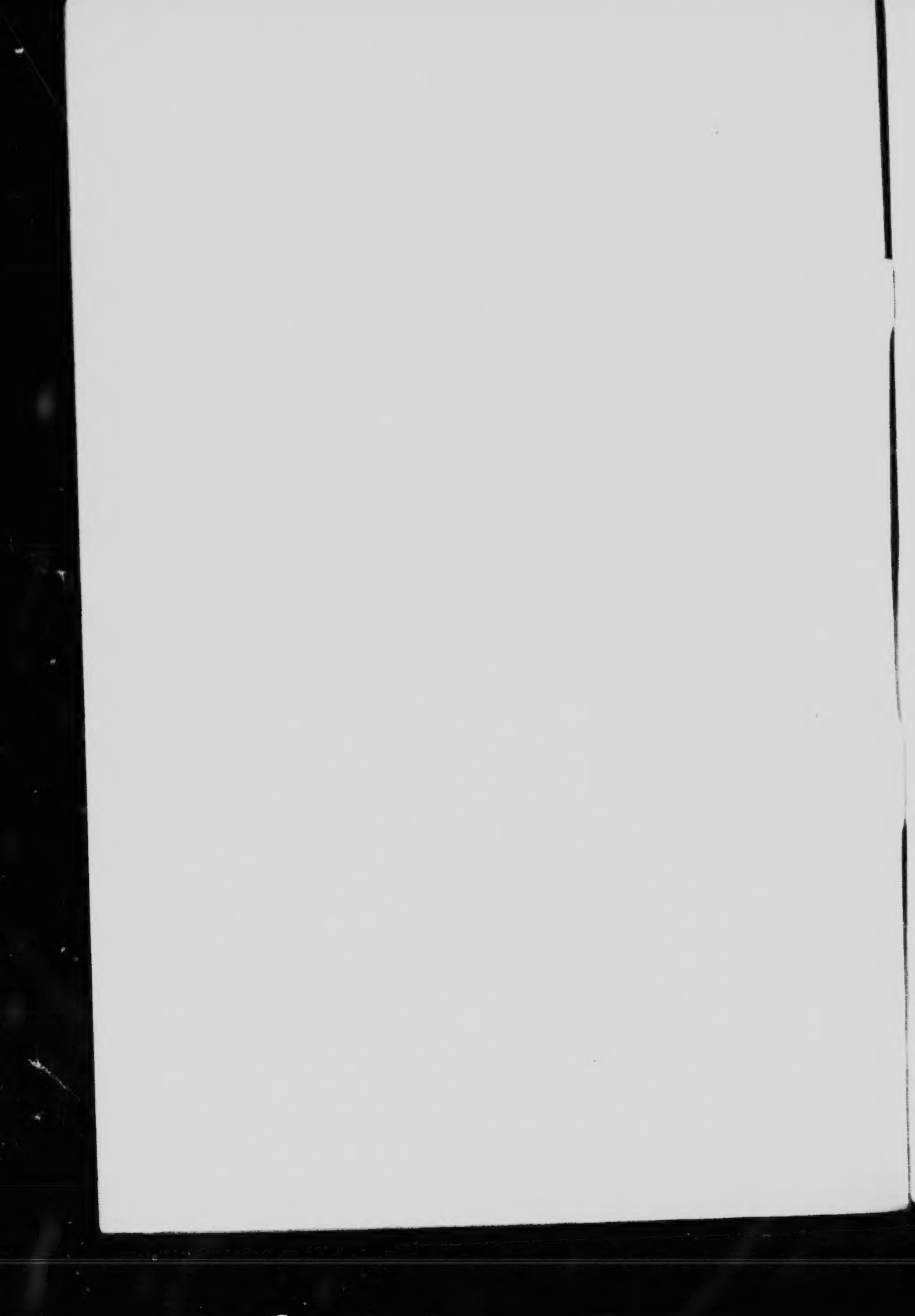
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INTRODUCTION.

This publication contains the results of Precise Levelling by the Geodetic Survey of Canada for certain lines in the provinces of Ontario and Quebec. Precise levelling results previously issued to the public are contained in six "Publications of the Dominion Observatory", as follows:—

Vol. I, No. 2, issued 1912*	Vol. II, No. 1, issued 1915
Vol. I, No. 3, " 1913	Vol. III, No. 3, " 1916
Vol. I, No. 8, " 1914	Vol. III, No. 8, " 1917

and in Publication No. 1 of the Geodetic Survey of Canada. All the above publications are now in the charge of the Superintendent of the Geodetic Survey and may be had upon application to him.

The present work is arranged in the same general form as the previous ones, with the results of the levelling set forth in three tables. The index and map included herein are complete for all the levelling previously published as well as that in the present publication; the index indicates in which publication descriptions and elevations of bench-marks previously published may be found.

Table I indicates the routes followed between terminal points and gives complete descriptions of all bench-marks established along these routes.

Table II shows in the first two columns the numbers of the bench-marks; in the third and fourth columns the approximate distance (in miles) between bench-marks, and from the initial bench-mark of the line; the fifth and sixth columns (headed "Discrepancy") give the difference (in feet) between the forward levelling and the backward levelling for each section between bench-marks and the accumulated difference from the initial bench-mark. The seventh column gives the elevations of the bench-marks shown in the second column; for convenience, these bench-marks are repeated (in the eighth column) in order that the number of any bench-mark and its elevation may be in adjoining columns. In this table are shown also the elevations determined by the Geodetic Survey of Canada for certain bench-marks established by other surveys and connected with the former.

Table III shows the elevations at railway stations and at crossings of intersecting railways; also on the bridges over rivers and lakes and the more important streams. Rail elevations were in all cases taken on top of the rail, in front of the telegraph office at telegraph stations and opposite the shelter or platform at flag-stations.

The results are given for the following lines:—

1. Montreal to Hull, Que.
2. St. Martin Junction to Three Rivers, Que.
3. Grenville, Que., to Prescott, Ont.
4. Ivanhoe to Toronto, Ont.
5. Bethany to Port Hope, Ont.
6. Myrtle to Whitby, Ont.
7. North Toronto to Mimico, Ont.

Line 1 starts from one of the bench-marks on the Montreal loop-line (last year's publication) and terminates at a previously established bench-mark at Hull; the closing error of the circuit formed by the two lines from Rouse Point to Hull is 0.250 foot—the difference between the two observed elevations for the junction bench-mark at Hull. In the table of elevations given herewith this closing error has been distributed uniformly along the line between St. Martin Junction and Hull at the rate of a little more than .002 foot per mile.

* Levelling in Yukon Territory only.

Lines 2 and 3 are branches from line 1. Line 3 closes on the original Rouse Point-Toronto line at Prescott, having already intersected the same line at St. Polycarpe Junction and the Finch-Cornwall line at Cornwall. The three links thus formed have been fitted in with the old levelling so as to eliminate the discrepancies at the junction bench-marks.

Line 4 completes the Kempton-Toronto line, the results for which, as far west as Ivanhoe, were published in 1917. Lines 5 and 6 form connections between this and the earlier levelling along the north shore of lake Ontario. Line 7 is a short line running through the suburbs of the city of Toronto; taken in conjunction with the adjacent levelling done several years previously it completes a loop around the western and northwestern portions of the city. The closing errors of lines 4, 5, 6 and 7 have all been disposed of by distributing them as in line 1.

The policy of dispersing the closing errors or fitting the new levelling to the old has been adopted for this year's lines by reason of the fact that all the lines (with the exception of No. 2) form connections between levels which were previously well established and had been published. A proper accordance between all the bench-marks cannot be had until an adjustment is made of the entire net in eastern Canada, but the levelling has now reached a stage where it seems better—pending an adjustment—to eliminate the closing errors and avoid discordant elevations of junction bench-marks with the resulting inconvenience to engineering projects, it being reasonably certain that such closing errors are caused by the ordinary accidental and systematic errors in the levelling and not by any gross errors.

In Table II the observed elevation of each junction bench-mark has been shown, as a matter of interest, as well as the adopted elevation.

The standard bench-mark consists of a copper bolt, three quarters of an inch in diameter and four inches long, stamped on the end with the letters "G.S.C., B.M." (Geodetic Survey of Canada, Bench-Mark). The bolt is sunk horizontally in rock or masonry so that only the circular end is visible; the number of the bench-mark is stamped on this end as well as the letters mentioned above, and a horizontal chisel line is cut, upon which the elevation is taken. At certain points concrete bench-mark piers have been built; these project from six inches to one foot above the ground and extend below the frost line; in all piers built previous to 1917 the copper bolt upon which the elevation was taken was placed horizontally in a side of the pier, about nine inches below the top. In 1917 a new design was adopted, the bolt being placed vertically in the top of the pier. The description indicates in each case the position of the bolt.

TABLE I

BENCH-MARKS BETWEEN MONTREAL (MILE END) AND HULL, QUE., VIA CANADIAN PACIFIC RAILWAY.

Elevations on page 18.

Note.—These descriptions are written with the assumption that the railway runs in a north-westerly direction from Mile End to Ste. Thérèse, and thence westerly to a point about $2\frac{1}{2}$ miles from Hull.

- 826 In square concrete culvert under Canadian Pacific railway, $1\frac{1}{2}$ miles northwest of Mile End station and 1,600 feet northwest of north line of Baby street, Montreal. Southeast end of northeast face of culvert.
- 827 In square concrete culvert under Grand Trunk railway, immediately south of junction with Canadian Pacific railway at Jacques Cartier Junction and at mileage 8.4 from Montreal (Place Viger station). North end of east face of culvert.
- 828 In long steel truss bridge over rivière-des-Prairies, between Bordeaux and Laval Rapides, on Canadian Pacific railway. South retaining wall, southeast end of southwest face, fourth course of stonework below top.
- 829 In concrete footing of semaphore beside Quebec line of Canadian Pacific railway, about 800 feet northeast of station house at St. Martin Junction. West face of footing (facing Montreal-Hull track), 10 inches below top.
- 830 In top of concrete bench-mark pier, $2\frac{1}{2}$ miles northwest of St. Martin Junction, 300 feet southeast of mile post 15 from Montreal and 8 feet northeast of southwest line of Canadian Pacific railway right of way. Also 335 feet southeast of a pair of battery boxes connected with electric block system.
- 831 In Canadian Pacific railway bridge over rivière-des-Milles Îles, $\frac{1}{2}$ mile northwest of Ste. Rose and at mileage 17.4 from Montreal. South retaining wall, southwest face, second course of stonework below top.
- 832 In Roman Catholic church at Ste. Thérèse. Front (or west) wall, first course of stonework below water table course, 18 inches from southwest corner of building.
- 833 In square stone and concrete culvert under Canadian Pacific railway, 3 miles west of Ste. Thérèse and at second telegraph pole east of mile post 23 from Montreal. East end of north face of culvert.
- 834 In square stone and concrete culvert under Canadian Pacific railway, $1\frac{1}{2}$ miles east of St. Augustin and at mileage 25.6 from Montreal. East end of north face of culvert, third course of stonework below top.
- 835 In square stone and concrete culvert under Canadian Pacific railway, $1\frac{1}{2}$ miles west of St. Augustin and at mileage 28.7 from Montreal—250 feet east of St. Augustin west mile board. South face of culvert, immediately west of water-passage.
- 835-A In plate girder bridge immediately west of Ste. Scholastique station, on Canadian Pacific railway. Concrete retaining wall behind west abutment, north end of east face, 32 inches above bridge seat.
- 836 In Roman Catholic church at Ste. Scholastique. Front (or south) wall, third course of stonework above water table course, 10 feet from southeast corner of building.
- 837 In top of concrete bench-mark pier, $1\frac{1}{2}$ miles west of St. Hermas, 6 feet south of north line of Canadian Pacific railway right of way and between third and fourth telegraph poles west of mile post 39 from Montreal—100 feet east of a farm crossing.
- 838 In Lachute post office. East (side) wall, first course of stonework below water table course, directly above first basement window from rear of building.
- 839 Destroyed.
- 840 In west face of small boulder, $1\frac{1}{2}$ miles west of Staynerville, 10 feet north of south line of Canadian Pacific railway right of way and at eleventh telegraph pole west of mile post 50 from Montreal—150 feet east of west end of first curve west of Staynerville.
- 841 In square stone (double) culvert under Canadian Pacific railway, 450 feet east of road crossing at Magnesite and at mileage 51.7 from Montreal. West end of south face of coping on south end of culvert.
- 842 In plate girder bridge on Canadian Pacific railway, $\frac{1}{2}$ mile east of Grenville. Concrete retaining wall behind east stone abutment, north end of west face, 16 inches above bridge seat.

- 843 In concrete arch culvert under Canadian Pacific railway, $\frac{1}{2}$ mile east of Grenville and at mileage 57.15 from Montreal. West end of south face of culvert, 14 inches below top.

NOTE.—For bench-mark in Grenville Roman Catholic church see line from Grenville to Prescott.

- 844 In small stone and concrete culvert under Canadian Pacific railway, $1\frac{1}{2}$ miles west of Calumet and at mileage 61.2 from Montreal. South face of culvert.
- 845 In small stone and concrete culvert under Canadian Pacific railway, $1\frac{1}{2}$ miles east of Pointe-au-Chêne and at mileage 63.6 from Montreal. North face of culvert.
- 846 In deck truss bridge over Little Salmon river, $2\frac{1}{2}$ miles west of Pointe-au-Chêne and at mileage 67.2 from Montreal. Northeast retaining wall, west end of north face, first course of stonework below coping.
- 847 In Fassett Lumber company's office, directly opposite Fassett station. East concrete foundation wall, 10 inches below woodwork and 14 inches from southeast corner of building.
- 848 In square stone and concrete culvert under Canadian Pacific railway, $\frac{1}{2}$ mile east of Montebello and at mileage 73.9 from Montreal. West end of south face of culvert.
- 849 In stone and concrete arch culvert under Canadian Pacific railway, $\frac{1}{2}$ mile west of Montebello and 200 feet east of mile post 75 from Montreal. Northeast retaining wall, east end of north face, third course of stonework below top.
- 850 In shallow rock cut on Canadian Pacific railway, $\frac{1}{2}$ mile east of Papineauville station, 220 feet west of easterly switch of passing track and 330 feet east of an old stone culvert. North side of cut, near centre.
- 850-A In flat outcrop of rock, 1 mile west of Papineauville and 1 foot north of north line of Canadian Pacific railway right of way—opposite three farm buildings. Copper bolt set vertically, 40 feet west of a gate in right of way fence and 100 feet east of mile post 80 from Montreal.
- 851 In square stone and concrete culvert under Canadian Pacific railway, $2\frac{1}{2}$ miles west of Papineauville and at mileage 81.4 from Montreal. West abutment, north face, fourth course of stonework below top.
- 852 In small rock cut on Canadian Pacific railway, $1\frac{1}{2}$ miles west of Plaisance and 360 feet west of mile post 85 from Montreal—the second rock cut west of bridge over Petite Nation river. South side of cut, near east end.
- 852-A In large mass of rock, 2 miles west of Plaisance, 450 feet north of north line of Canadian Pacific railway right of way and at mileage 85.7 from Montreal—directly behind an old barn. West face of rock, about 35 feet from north end.
- 853 In small stone and concrete culvert under Canadian Pacific railway, $3\frac{1}{2}$ miles east of Thurso and at mileage 86.9 from Montreal. East end of north face of culvert.
- 854 In Roman Catholic church at Thurso. West (side) wall, 54 feet from front of building and about 2 feet above ground.
- 855 In top of concrete bench-mark pier, 1 mile west of Lochaber flag-station, 8 feet south of north line of Canadian Pacific railway right of way and 12 feet east of mile post 95 from Montreal—about 20 feet west of a small stone culvert.
- 856 In stone and concrete culvert under Canadian Pacific railway, $1\frac{1}{2}$ miles east of Buckingham Junction and at mileage 98.6 from Montreal. East end of south face of culvert.
- 857 In stone and concrete culvert under Canadian Pacific railway, $\frac{1}{2}$ mile west of Buckingham Junction and at mileage 100.6 from Montreal. West end of north face of culvert, third course of stonework below top.
- 858 In small stone and concrete culvert under Canadian Pacific railway, $\frac{1}{2}$ mile west of Angers and at mileage 104.2 from Montreal. Centre of south face of culvert.
- 859 In large stone and concrete arch culvert under Canadian Pacific railway, $2\frac{1}{2}$ miles west of Angers, and at mileage 106.3 from Montreal. North-east retaining wall, east end of north face, fourth course of stonework below top.
- 860 In steel truss bridge over Blanche river, 1,000 feet east of East Templeton station, on Canadian Pacific railway. Southwest retaining wall, south face, 30 inches west of rear (or west face) of west abutment and in third course of stonework below top.
- 861 In Roman Catholic church at Ste. Rose-de-Lima, about $\frac{1}{2}$ mile north of East Templeton station. West wall of westerly transept, 8 feet 6 inches from north wall and directly above first basement window north of a small doorway.
- 862 In small stone and concrete culvert under Canadian Pacific railway, $1\frac{1}{2}$ miles east of Gatineau flag-station and at mileage 112.6 from Montreal. North face of culvert.

- 802-A In top of a stone monument, 1½ miles east of Gatineau flag-station, 10 feet south of south line of Canadian Pacific railway right of way and at mileage 113.1 from Montreal—3 feet west of west line of road between lots 22 and 23, township of Templeton.
- 803 In Canadian Pacific railway bridge over Gatineau river, 2½ miles northeast of Hull. West face of east abutment, 6 feet from north end of abutment, and in nineteenth course of stonework below top.
- 804 In Roman Catholic church at Pointe Gatineau. West (side) wall, 15 feet from face of buttress at southwest corner of building and in water table course of stonework.
- 400 In cement storehouse at Canada Cement company's plant 1½ miles north of Hull, beside Canadian Pacific railway. East wall of storehouse (a large concrete building), east face of most southerly buttress, 1 foot above ground and 95 feet from Canadian Pacific railway's Ottawa-Maniwaki track.

BENCH-MARKS BETWEEN ST. MARTIN JUNCTION AND THREE RIVERS, QUE.,
VIA CANADIAN PACIFIC RAILWAY.

Elevations on page 19.

- 684-B In square stone and concrete culvert under Canadian Pacific railway, 1,120 feet southwest of Le Cap flag-station and at mileage 0.7 from St. Martin Junction. Northwest face of culvert, 9 inches below top and 30 inches from side of water-passage.
- 685-B In square stone and concrete culvert under Canadian Pacific railway, 2½ miles southw. of St. Vincent-de-Paul and at mileage 2.6 from St. Martin Junction. Southeast face of culvert, 14 inches below top and 8 inches from side of water-passage.
- 686-B In tile culvert under Canadian Pacific railway, ¼ mile southwest of St. Vincent-de-Paul station and at southwesterly switch of passing-track. Southeast concrete face-wall of culvert.
- 687-B In Canadian Pacific railway bridge over rivière-des-Milles, between De Sales and Terrebonne. Stone retaining wall behind southwest abutment, southeast end of northeast face, 34 inches above bridge seat.
- 688-B In Roman Catholic church at De Sales. Front (or north) wall, north face of corner stone at northwest corner of building, first course above water table course.
- 689-B In Roman Catholic church at Mascouche. Front (or east) wall, 4 feet from southeast corner of building and in first course of stonework below water table course.
- 690-B In small plate girder bridge on Canadian Pacific railway, 1½ miles northeast of Mascouche and at mileage 15.5 from St. Martin Junction. Stone retaining wall behind southwest abutment, southeast face, second course below coping.
- 691-B In stone and concrete culvert under Canadian Pacific railway, 1,200 feet northeast of Cabane Ronde flag-station and at mileage 17.5 from St. Martin Junction. Northeast end of northwest face of culvert, 13 inches below top.
- 692-B In concrete arch culvert under Canadian Pacific railway, 1½ miles southwest of L'Epiphanie and at mileage 21.3 from St. Martin Junction. Northeast end of southeast face of culvert, 1 foot below top.
- 693-B In Roman Catholic church at L'Epiphanie. Front (or south) wall, 30 inches from east side of buttress at southwest corner of building and in water table course of stonework.
- 694-B In plate girder bridge over St. Esprit river, 1½ miles northeast of L'Epiphanie and at mileage 24.5 from St. Martin Junction. Stone retaining wall behind northeast abutment, northwest end of southwest face, third course above bridge seat.
- 695-B In steel truss bridge over L'Assomption river, 1 mile southwest of Vaucluse flag-station. Stone retaining wall behind southwest abutment, southeast end of northeast face, second course above bridge seat.
- 696-B In square stone and concrete culvert under Canadian Pacific railway, 2 miles northeast of Lavaltrie and at mileage 32.4 from St. Martin Junction. Northeast end of northwest face of culvert, 8 inches below top.
- 697-B In square stone and concrete culvert under Canadian Pacific railway, 1,200 feet northeast of Lanoraie station. Southwest end of southeast face of culvert, 8 inches below top.
- 698-B In plate girder bridge over Chaloupe river, 1 mile southwest of Berthier Junction and at mileage 42.9 from St. Martin Junction. Stone retaining wall behind northeast abutment, northwest end of southwest face, second course below concrete coping.

- 699-B In large square stone and concrete culvert under Canadian Pacific railway, 1½ miles southwest of St. Cuthbert and at mile post 46 from St. Martin Junction. Southeast face of culvert, 38 inches below top and 15 inches from side of water-passage.
- 706-B In plate girder bridge over Chicot river, 800 feet southwest of St. Cuthbert station. Stone retaining wall behind northeast abutment, northwest end of southwest face, second course above bridge seat.
- 701-B In square stone and concrete culvert under Canadian Pacific railway, 2 miles southwest of St. Barthélemi and at mileage 50.2 from St. Martin Junction. Southwest end of southeast face of culvert, 1 foot below top.
- 702-B In small plate girder bridge on Canadian Pacific railway, 1 mile northeast of St. Barthélemi and at mileage 53.2 from St. Martin Junction. Southwest abutment, northwest face, first course of stonework below bridge seat.
- 703-B In Canadian Pacific railway bridge over Maskinongé river, 1,000 feet southwest of Maskinongé station. Stone and concrete retaining wall behind southwest abutment, southeast end of northeast face, 4 feet 8 inches above bridge seat.
- 704-B In Roman Catholic church at Maskinongé. Front (or east) wall, 4 feet from southeast corner of building and in water table course of stonework.
- 705-B In post office at Louiseville. Front wall, 11 feet 6 inches west of west wall of clock tower, in cap stone over a basement window.
- 706-B In Canadian Pacific railway bridge over rivière-du-Loup, ½ mile northeast of Louiseville station. Stone retaining wall behind northeast abutment, northwest end of southwest face, third course above bridge seat.
- 707-B In square stone and concrete culvert under Canadian Pacific railway, 2 miles southwest of Yamachiche and at mileage 65.4 from St. Martin Junction. Southwest end of southeast face of culvert, 9 inches below top.
- 708-B In Roman Catholic church at Yamachiche. Front (or north) wall, 4 feet from northeast corner of building and in second course of stonework above concrete floor of portico.
- 709-B In plate girder bridge over Yamachiche river, 1½ miles northeast of Yamachiche and at mileage 68.8 from St. Martin Junction. Stone and concrete retaining wall behind northeast abutment, northwest end of southwest face, second course above bridge seat.
- 710-B In plate girder bridge on Canadian Pacific railway, 3 miles southwest of Pointe-du-Lac and at mileage 71.4 from St. Martin Junction. Stone and concrete retaining wall behind southwest abutment, southeast end of northeast face, 42 inches above bridge seat.
- 711-B In plate girder bridge on Canadian Pacific railway, ½ mile southwest of Pointe-du-Lac and at mile post 74 from St. Martin Junction. Stone retaining wall behind southwest abutment, southeast end of northeast face, second course above bridge seat.
- 712-B In square stone and concrete culvert under Canadian Pacific railway, 4 miles southwest of Three Rivers and at mileage 78.4 from St. Martin Junction. Northeast end of northwest face of culvert, 6 inches below top.
- 713-B In Le Jeune street steel bridge over Canadian Pacific railway, ½ mile south of Three Rivers station. The bench mark is in the square concrete pier which is at the south side of the bridge and between main line track and Grand Mère branch; it faces the former track and is about 2 feet above ground.
- 714-B In library immediately behind and connected with Roman Catholic cathedral at Three Rivers. West (side) wall, 40 inches south of Royale street wall and in third course of stonework below water table course.
- 715-B In post office at Three Rivers. West (side) wall, second course of stonework below water table course, 5 feet south of wall facing Notre Dame street and 12 feet north of side entrance to Inland Revenue offices.
- 716-B In armoury at Three Rivers. Front wall—facing St. Francois-Xavier street; third course of stonework below brickwork, between second and third basement windows south of main entrance.
- BENCH MARKS BETWEEN GRENVILLE, QUE., AND PRESCOTT, ONT., VIA CANADIAN NORTHERN RAILWAY TO HAWKESBURY, GRAND TRUNK RAILWAY TO ST. POLYCARPE JUNCTION, CANADIAN PACIFIC RAILWAY TO CORNWALL, AND GRAND TRUNK RAILWAY TO PRESCOTT.**

Elevations on page 20.

Note—These descriptions are written with the assumption that the railways run in a southerly direction from Grenville to Glen Robertson, thence southeasterly to St. Polycarpe Junction, thence southwesterly to Cornwall, and thence westerly to Prescott.

- 705-B In Roman Catholic church at Grenville. East (side) wall, 13 feet south of south wall of transept and in water table course of stonework.

- 866 Canadian Northern railway bridge over Grenville canal, immediately north of bridge over Ottawa river between Grenville and Hawkesbury. Stone retaining wall behind north abutment, east end of south face, second course above bridge seat.
- 867 In Main street subway under Canadian Northern railway in the town of Hawkesbury. North concrete abutment of subway, centre of south face, about 2 feet above street level.
- 868 In Roman Catholic church at Hawkesbury. East wall of main tower (at northeast corner of church), 8 feet from south wall of tower and in second course of stonework below water table course.
- 869 In post office at Hawkesbury. Front wall, second course of stonework below brickwork, 2 feet west of west wall of vestibule at easterly entrance.
- 870 In southwest face of large boulder, 4 miles south of Hawkesbury, 135 feet east of east line of Grand Trunk railway right of way, 300 feet north of mile post 17 from Glen Robertson and 440 feet north of private crossing leading to house and barns of T. Sproule.
- 871 In square concrete culvert under Canadian Pacific railway, 0.4 mile east of Grand Trunk railway diamond crossing near Vankleek Hill and at mileage 32.8 from Vaudreuil. West end of south face of culvert.
- 872 In flat mass of rock, 2 miles south of Vankleek Hill, 21 feet east of west line of Grand Trunk railway right of way and 1,260 feet north of a diagonal road crossing. Center bolt set vertically.
- 873 In Grand Trunk railway bridge over Rigaud river, 1 mile north of Dalkeith. West face of concrete retaining wall behind north abutment, 3 feet 9 inches above bridge seat.
- 874 In a galvanized iron sheathed storehouse on east side of Grand Trunk railway, 350 feet south of Dalkeith station. West concrete foundation wall, 1 foot below sheathing and 27 feet from northwest corner of building.
- 875 In east face of large granite boulder, 870 feet south of Glen Sandfield flag-station and 15 feet east of west line of Grand Trunk railway right of way.
- 876 In top of concrete bench mark pier, 3 feet west of east line of Grand Trunk railway right of way (Hawkesbury-Glen Robertson line), 172 feet north of switch stand at north end of Glen Robertson Y, and 1,040 feet north of main line of Ottawa division.
- 877 In Roman Catholic church at Glen Robertson. East (side) wall, 35 feet from front of building and in water table course of stonework.
- 878 In open culvert under Grand Trunk railway, 2 miles southeast of Glen Robertson and at mileage 70.15 from Alburgh Junction. Southeast stone and concrete abutment, northeast end of northwest face, 6 feet below bridge seat.
- 879 In small plate girder bridge on Grand Trunk railway, $\frac{1}{2}$ mile northwest of Ste. Justine. Southwest face of west concrete retaining wall, 30 inches below top and 5 feet 6 inches from northwest end of retaining wall.
- 880 In square concrete culvert under Grand Trunk railway, $1\frac{1}{2}$ miles northwest of St. Polycarpe Junction and at mileage 64.6 from Alburgh Junction. Southwest face-wall of culvert, 18 inches below top and 4 feet 6 inches from northwest end of face-wall.
- 881 In top of concrete bench-mark pier, 3 feet northeast of southwest line of Grand Trunk railway right of way, 2,060 feet northwest of diamond crossing of Canadian Pacific railway at St. Polycarpe Junction and 386 feet northwest of distant semaphore of interlocking plant.
- 92 In small open culvert under Grand Trunk railway, $\frac{1}{4}$ mile southeast of St. Polycarpe Junction. Southwest face of northwest abutment, fourth course of stonework below top.
- 93 In Canadian Pacific railway bridge over Delisle river, 1 mile west of St. Polycarpe Junction. West face of stone coping on southwest abutment of bridge.
Note.—Check levelling in 1918 indicates that the abutment has shifted slightly since the original levelling in 1906.
- 882 In Roman Catholic church at St. Polycarpe. North face of pilaster at northwest corner of building, second course of stonework below water table course.
- 883 In concrete arch culvert under Cornwall branch of Canadian Pacific railway, $1\frac{1}{4}$ miles southwest of St. Polycarpe Junction and 1,400 feet southwest of junction switch at Soulanges. Concrete coping on northwest end of culvert, northeast end of northwest face of coping.
- 884 In Roman Catholic church at St. Télesphore. West (side) wall, 19 feet from front wall of building and about 2 feet above ground.
- 885 In square concrete culvert under Canadian Pacific railway, 2 miles northeast of Bridge End and at mileage 3.3 from Soulanges. Southwest abutment of culvert, southeast end of northeast face of abutment.

- 886 In plate girder bridge over Baudet river, $\frac{1}{2}$ mile northeast of Bridge End, on Canadian Pacific railway. Concrete retaining wall behind southwest abutment, southeast end of northeast face, 21 inches above bridge seat.
- 887 In square concrete (double) culvert under Canadian Pacific railway, $\frac{1}{2}$ mile northeast of North Lancaster and at mileage 8.4 from Soulanges. Northeast end of northwest face of culvert, 10 inches below top.
- 888 In square concrete culvert under Canadian Pacific railway, $1\frac{1}{2}$ miles northeast of Glen Gordon flag-station and at mile post 11 from Soulanges. Southwest end of southeast face of culvert.
- 889 In square concrete culvert under Canadian Pacific railway, $\frac{1}{2}$ mile southwest of Glen Gordon flag-station and at mileage 13.3 from Soulanges. Northeast end of northwest face of culvert.
- 890 In plate girder bridge over Raisin river, 700 feet southwest of Williamstown station, on Canadian Pacific railway. Concrete retaining wall behind southwest abutment, southeast end of northeast face, 40 inches above bridge seat.
- 891 In small square concrete culvert under Canadian Pacific railway, $\frac{1}{2}$ mile northeast of Glenbrook flag-station and at mileage 19.5 from Soulanges. Centre of southeast face of culvert.
- 892 In square concrete culvert under Canadian Pacific railway, $4\frac{1}{2}$ miles northeast of Cornwall and at mileage 23.3 from Soulanges. Northeast end of northwest face of culvert.
- 893 In top of concrete bench-mark pier, 240 feet northeast of diamond crossing of Grand Trunk and Canadian Pacific railways $\frac{1}{2}$ mile east of G.T.R. station, Cornwall. The pier is 4 feet southeast of northwest line of C.P.R. right of way and 80 feet northeast of north fence of road running parallel to and on north side of G.T.R.
- 894 In Grand Trunk steel water tank at Cornwall station. Northeast face—5 inches below top—of northwesterly concrete footing.
- 490 In post office at Cornwall. South wall, 32 inches west of west wall of clock tower and in second course of stonework below water table course.
- 895 In large square stone and concrete culvert under Grand Trunk railway, $\frac{1}{2}$ mile west of MilleRoches and at mileage 261.1 from Toronto. East end of north face of culvert.
- 896 In large square stone and concrete culvert under Grand Trunk railway, 1 mile west of Moulinette flag-station and at mileage 259.3 from Toronto. West end of south face of culvert.
- 897 In stone arch bridge over Hoople creek 850 feet west of Wales station, on Grand Trunk railway. North face of east abutment, 4 feet from west face of abutment and in seventh course below coping.
- 898 In north face of flat limestone boulder, $2\frac{1}{2}$ miles west of Wales and at mileage 254.4 from Toronto—immediately north of north line of Grand Trunk railway right of way and at the east side of a farm crossing.
- 899 In stone arch culvert under Grand Trunk railway, 850 feet west of Farran Point flag-station and at mileage 252.1 from Toronto. Southeast wing wall of culvert, southeast face of top course of stonework.
- 900 In large open culvert under Grand Trunk railway, $\frac{1}{2}$ mile west of Aultsville and at mileage 249.25 from Toronto. Northwest face of northwest wing wall, first course of stonework above seat of I-beams.
- 901 In stone monument erected in 1895 to commemorate the battle of Cryslar's Farm; this is on the north bank of St. Lawrence river about $3\frac{1}{2}$ miles west of Aultsville. The bench-mark is in north face of stone base of monument.
- 902 In stone arch culvert under Grand Trunk railway, $3\frac{1}{2}$ miles east of Morrisburg and at mileage 245.1 from Toronto. Southeast wing wall, second course of stonework above floor of culvert, first stone from mouth of water-passage.
- 903 In plate girder bridge on Grand Trunk railway, 1 mile east of Morrisburg. Northwest face of northeast retaining wall, sixth course of stonework below bridge seat, fourth stone from north end of east abutment.
- 904 In Grand Trunk station house at Morrisburg. Front (or north) wall, immediately east of westerly doorway and in second course of stonework above water table.
- 905 In east wall of vestry of St. James Anglican church, Morrisburg. In water table course of stonework, directly beneath a pair of windows facing street.
- 906 In large square stone and concrete culvert under Grand Trunk railway, 3 miles west of Morrisburg and at mileage 238.3 from Toronto—200 feet west of a highway crossing. East stone abutment, north end of west face, third course below concrete top of culvert.

- 907 In top of concrete bench-mark pier, 1 mile east of Iroquois, 5 feet north of south line of Grand Trunk railway right of way, 26 feet east of a farm crossing and 690 feet east of east end of a plate girder bridge at mileage 235.65 from Toronto.
- 908 In Grand Trunk station house at Iroquois. Front (or north) wall, immediately east of westerly doorway and in second course of stonework above water table.
- 909 In small open culvert under Grand Trunk railway, 2½ miles east of Cardinal and at mileage 231.6 from Toronto. West stone abutment, south end of east face, third course below seat of I-beams.
- 910 In large square concrete culvert under Grand Trunk railway, 1,100 feet east of Cardinal station. South face-wall of culvert, 30 inches below top and 6 inches from west end of face-wall.
- 911 In square stone and concrete culvert under Grand Trunk railway, 3½ miles west of Cardinal and at mileage 225.9 from Toronto. West stone abutment, south end of east face, third course below concrete top of culvert.
- 912 In top of concrete bench-mark pier, 3½ miles east of Prescott and 4 feet north of south line of Grand Trunk railway right of way—directly opposite a section tool-house. Also 396 feet west of west end of a plate girder bridge at mileage 223.4 from Toronto.
- 118 In Grand Trunk railway bridge over Canadian Pacific railway (Ottawa-Prescott line), 1½ miles east of Prescott. North face of east abutment, twentieth course of stonework below bridge seat.
- 913 In custom house at Prescott. Front (or south) wall, 8 feet east of main entrance and in third course of stonework above sidewalk.
- 914 In Roman Catholic church at Prescott. West (side) wall, 25 feet from front of building and in first course of stonework below water table course.
- 119 In Grand Trunk station house at Prescott. North face of corner stone at northeast corner of building, third course above water table.

BENCH-MARKS BETWEEN IVANHOE AND TORONTO (NORTH TORONTO), ONT., VIA CANADIAN PACIFIC RAILWAY.

Elevations on page 22.

- 187-G In square concrete culvert under Canadian Pacific railway, 2 miles west of Ivanhoe and at mileage 73.6 from Glentay. East end of north face of culvert, 1 foot below top.
- 188-G In square stone and concrete culvert under Canadian Pacific railway, 4½ miles west of Ivanhoe and 40 feet west of westerly switch of Peterson passing-track. East end of north face of culvert, 15 inches below top.
- 189-G In side of concrete bench-mark pier, ½ mile east of Bonarlaw, 5 feet south of north line of Canadian Pacific railway right of way and 776 feet east of centre line of a road crossing.
- 190-G In square concrete culvert under Canadian Pacific railway, 4½ miles west of Bonarlaw and at mileage 84.7 from Glentay. East end of north face of culvert, 9 inches below top.
- 191-G In square concrete culvert under Canadian Pacific railway at mileage 86.9 from Glentay. East end of north face of culvert.
- 192-G In square concrete culvert under Canadian Pacific railway at mileage 89.1 from Glentay. West end of south face of culvert.
- 193-G In plate girder bridge on Canadian Pacific railway, 1½ miles east of Havelock. Concrete retaining wall behind west abutment, south end of east face, 30 inches above bridge seat.
- 193-G-2 In small concrete highway bridge over a creek, about ½ mile west of Havelock station and 200 feet south of Canadian Pacific railway. West face of north abutment, 7 inches below top.
- 194-G In square concrete culvert under Canadian Pacific railway, 1 mile west of Havelock. East end of north face of culvert.
- 195-G In plate girder bridge on Canadian Pacific railway, 1½ miles east of Norwood and at mileage 4.9 from Havelock. Southeast retaining wall, south face, first course of stonework below coping.
- 196-G In grain elevator about 480 feet west of Norwood station, on south side of Canadian Pacific railway. North concrete foundation wall, 3 feet above ground and 1 foot from northeast corner of building.
- 197-G In square concrete culvert under Canadian Pacific railway, 2 miles west of Norwood and at mileage 8.2 from Havelock. West end of north face of culvert, 1 foot below top.

- 198-G In square concrete culvert under Canadian Pacific railway, 1 mile east of Indian River and at mileage 13.6 from Havelock. Centre of north face of culvert.
- 199-G In square concrete culvert under Canadian Pacific railway, $1\frac{1}{2}$ miles west of Indian River and at mileage 16.3 from Havelock—at the east line of a highway crossing. Centre of north face of culvert.
- 200-G In square concrete (double) culvert under Canadian Pacific railway, $3\frac{1}{2}$ miles west of Indian River and at mileage 18.3 from Havelock. East abutment, north end of west face, 4 feet below top of culvert.
- 201-G In square concrete culvert under Canadian Pacific railway, $3\frac{1}{2}$ miles east of Peterboro and at second telegraph pole west of mile post 21 from Havelock. Centre of south face of culvert.
- 202-G In Trent canal lift-lock at Peterboro. East tower, centre of south face, 3 feet above concrete floor at lower level.
- 203-G In armoury at Peterboro. South (or Murray street) wall, fourth course of stonework below brickwork, 2 feet from southwest corner of building.
- 204-G In Sacred Heart Roman Catholic church, Peterboro; corner of Aylmer and Romaine streets. West (side) wall, first course of stonework below water table course, between fourth and fifth buttresses from front of building.
- 205-G In top of concrete bench-mark pier, 1 mile west of Peterboro station, 3 feet south of north line of Canadian Pacific railway right of way and 370 feet west of west line of Monaghan road.
- 206-G In square concrete (double) culvert under Canadian Pacific railway, 4 miles west of Peterboro and at mileage 28.35 from Havelock. East abutment, north end of west face, 3 feet below top of culvert.
- 207-G In square concrete culvert under Canadian Pacific railway, $1\frac{1}{2}$ miles east of Cavan and at mileage 31.7 from Havelock. East end of north face of culvert, 8 inches below top.
- 208-G In subway under Canadian Pacific railway (crossing of main road between Millbrook and Cavan), $1\frac{1}{2}$ miles west of Cavan station and at mileage 34.6 from Havelock. Concrete retaining wall behind west abutment, south end of east face, 16 inches above bridge seat.
- 209-G In Canadian Pacific railway bridge over Grand Trunk railway (Millbrook-Omemee Junction line), $\frac{1}{2}$ mile east of Bethany Junction and $4\frac{1}{2}$ miles north of Millbrook. West abutment, south end of east face, thirteenth course of stonework below bridge seat.
- 210-G In plate girder bridge on Canadian Pacific railway, $\frac{1}{2}$ mile west of Bethany Junction and at mileage 39.4 from Havelock. Southwest retaining wall, south face, second course of stonework below coping.
- 211-G In triangular tile culvert under Canadian Pacific railway, 6 feet east of east wall of Manvers station house. South face of south concrete face-wall, 9 inches below top.
- 212-G In small concrete arch culvert under Canadian Pacific railway, $1\frac{1}{2}$ miles east of Pontypool and 200 feet east of mile post 44 from Havelock. Centre of north face of culvert, 1 foot below top.
- 213-G In grain elevator about 630 feet west of Pontypool station, on south side of Canadian Pacific railway. North concrete foundation wall, 20 inches above door sill and 6 feet from northeast corner of building.
- 214-G In square concrete culvert under Canadian Pacific railway, $2\frac{1}{2}$ miles west of Pontypool and at mileage 47.6 from Havelock—at the east line of a highway crossing. Centre of south face of culvert.
- 215-G In top of concrete bench-mark pier, $4\frac{1}{2}$ miles east of Burketon, 9 feet south of north line of Canadian Pacific railway right of way and 72 feet east of east line of road allowance between townships of Manvers and Cartwright—directly opposite mile post 50 from Havelock.
- 216-G In Canadian Pacific section house about 350 feet west of Burketon station. (Front) or north concrete foundation wall, 14 inches below woodwork and 15 inches east of cellar window.
- 217-G In square concrete culvert under Canadian Pacific railway, $\frac{1}{2}$ mile west of Brady flag-station and at mile post 59 from Havelock—immediately west of a highway crossing. Centre of south face of culvert.
- 218-G In concrete arch cattle-pass under Canadian Pacific railway, $2\frac{1}{2}$ miles east of Myrtle and at first telegraph pole west of mile post 61 from Havelock—immediately east of a highway crossing. West face of north face-wall of culvert, 1 foot below top.
- 219-G In Grand Trunk railway bridge over Canadian Pacific railway, $\frac{1}{2}$ mile west of Myrtle C.P.R. station and $\frac{1}{2}$ mile north of Myrtle G.T.R. station. North face of south abutment, twelfth course of stonework below bridge seat, 25 feet from west end of abutment.

- 220-G In square concrete culvert under Canadian Pacific railway, $\frac{1}{2}$ mile east of Dagmar flag-station and at mileage 66.7 from Havelock. East abutment, north end of west face, 4 feet 4 inches below top of culvert.
- 221-G In concrete arch subway under Canadian Pacific railway, $\frac{1}{2}$ mile west of Glen Major flag-station and at mileage 69.3 from Havelock. Concrete coping on south end of subway, west end of south face of coping, 1 foot below top.
- 222-G In square concrete culvert under Canadian Pacific railway, $1\frac{1}{2}$ miles east of Claremont and at mileage 71.1 from Havelock. Centre of north face of culvert.
- 223-G In square concrete (double) culvert under Canadian Pacific railway, $1\frac{1}{2}$ miles west of Claremont and at mileage 74.3 from Havelock. Near centre of south face of culvert, 15 inches below top. This is the farther west of two similar culverts about 750 feet apart.
- 224-G In large stone-arch culvert under Canadian Pacific railway, $\frac{1}{2}$ mile west of Atha Road flag-station and at mileage 76.3 from Havelock. North face of northwest retaining wall, first course of stonework below coping on north end of culvert.
- 225-G In large concrete arch culvert under Canadian Pacific railway, $1\frac{1}{2}$ miles east of Locust Hill and at mileage 78.7 from Havelock. Concrete coping on south end of culvert, west end of south face of coping, 15 inches below top.
- 226-G In Canadian Pacific water tank (now disused) at Locust Hill. Circular masonry base of tank, 9 feet to the left of the doorway and in second course of stonework below door-sill.
- 227-G In large square concrete culvert under Canadian Pacific railway, $2\frac{1}{2}$ miles west of Locust Hill and at mileage 82.3 from Havelock. East end of north face of culvert, 1 foot below top.
- 228-G In plate girder bridge on Canadian Pacific railway, 4 miles west of Locust Hill and at mileage 84.1 from Havelock. Concrete retaining wall behind west abutment, south end of east face, 3 feet above bridge seat.
- 229-G In large square concrete culvert under Peterboro subdivision of Canadian Pacific railway, $\frac{1}{2}$ mile east of Agincourt and at mileage 87.15 from Havelock. West end of north face of culvert, 10 inches below top.
- 230-G In Canadian Pacific railway bridge over Grand Trunk railway (Lindsay-Scarboro Junction line), $\frac{1}{2}$ mile west of Agincourt and at mile post 97 from Trenton. Concrete retaining wall behind east abutment, south end of west face, 15 inches above bridge seat.
- 231-G In square concrete culvert under Canadian Pacific railway, $2\frac{1}{2}$ miles west of Agincourt and at second telegraph pole east of mile post 99 from Trenton. West end of south face of culvert, 8 inches below top.
- 232-G In Canadian Pacific railway's steel trestle viaduct over Little Don river and Canadian Northern railway, $2\frac{1}{2}$ miles east of Leaside. Concrete retaining wall behind east abutment, north end of west face, 30 inches above bridge seat.
- 233-G In Canadian Pacific railway's steel trestle viaduct over Don river, 1 mile east of Leaside. Concrete retaining wall behind west abutment, south end of east face, 40 inches above bridge seat.
- 234-G In Canadian Pacific railway's re-enforced concrete viaduct over ravine followed by old belt-line railway, $1\frac{1}{2}$ miles east of North Toronto station. East concrete abutment, south face, 3 feet below top.
- 235-G In Yonge street subway under Canadian Pacific railway at North Toronto station. West concrete abutment, south end of east face, 2 feet above concrete sidewalk. Also 40 feet 6 inches north of north wall of Dominion Bank.
- 189 In old Canadian Pacific station house (now disused) at North Toronto. This bench mark has been rendered inaccessible by the reconstruction of the railway.

BENCH-MARKS BETWEEN BETHANY AND PORT HOPE, ONT., VIA GRAND TRUNK RAILWAY.

Elevations on page 29.

- 915 In top of concrete bench-mark pier, 1 mile north of Millbrook, on Grand Trunk railway's Millbrook-Omemee Junction line. Pier is 10 feet east of west line of right of way and 41 feet north of intersection of west line of right of way with north line of road allowance between concessions V and VI, township of Cavan.
- 916 In armory at Millbrook. Concrete foundation of front wall, west face of buttress at west side of main entrance, 15 inches below brickwork.
- 917 In steel and concrete subway under Grand Trunk railway, $1\frac{1}{2}$ miles south of Carmel flag-station and at mileage 12.7 from Port Hope. Concrete retaining wall behind south abutment, east end of north face, 3 feet above bridge seat.

- 918 In F. Smith's (red brick) residence in the village of Campbellcroft, on north side of main road, immediately east of Grand Trunk railway. Stone foundation of east wall, 5 inches below brickwork and 10 feet from southeast corner of building.
- 919 In top of concrete bench-mark pier at Quay flag-station, 5 feet east of west line of Grand Trunk railway right of way and 56 feet north of intersection of said line with north line of road allowance between concessions IV and V, township of Hope.
- 920 In Canadian Northern railway's steel trestle viaduct over Port Hope-Peterboro line of Grand Trunk railway, 1 mile north of Port Hope (Walton street). Concrete footing of steel column on north side of C.N.R. and on west side of G.T.R. track; centre of north face of footing, 4 feet below top.
- 921 In Canadian Pacific railway's viaduct over Port Hope-Peterboro line of Grand Trunk railway in the town of Port Hope. Second concrete pier from west end of viaduct, centre of west face of pier, 18 inches above G.T.R. rails.
- 172 In Port Hope town hall. West end of south wall, fourth course of stonework above sidewalk.
- 172-A In Port Hope post office. South face of corner stone at southwest corner of building, first course above sidewalk.
- 173 In Grand Trunk station house at Port Hope Junction. West face of corner stone at northwest corner of building, first course above platform.

BENCH MARKS BETWEEN MYRTLE AND WHITBY, ONT., VIA GRAND TRUNK RAILWAY.

Elevations on page 24.

- 922 In top of concrete bench-mark pier, 1½ miles north of Brooklin, 4 feet west of east line of Grand Trunk railway right of way and 100 feet north of north line of road allowance between concessions VI and VII, township of Whitby.
- 923 In Anglican church at Brooklin, a frame building immediately east of Grand Trunk railway. West wall, 8 feet 6 inches from southwest corner of building, first course of stonework below woodwork.
- 924 In Canadian Northern railway bridge over Lyon brook, 1,100 feet west of Brooklin C.N.R. station and ¼ mile west of Grand Trunk railway diamond crossing. Concrete retaining wall behind east abutment, south end of west face, 3 feet above bridge seat.
- 925 In top of concrete bench-mark pier, 1½ miles north of Whitby (town station), 4 feet east of west line of Grand Trunk railway right of way and 30 feet south of south line of road allowance between concessions II and III, township of Whitby.
- 926 In Whitby post office. King street wall, first course of stonework below water table course, 12 feet 6 inches west of west wall of clock tower.
- 180-A In St. John's Anglican church, ¼ mile southeast of Grand Trunk station, Whitby Junction. West end of front wall, second course of stonework above ground.
- 927 In chimney of Whitby water works pumping station on shore of lake Ontario at Port Whitby. Concrete base of chimney, centre of north face.

BENCH MARKS BETWEEN NORTH TORONTO AND MIMICO, ONT., VIA CANADIAN PACIFIC RAILWAY THROUGH WEST TORONTO, ISLINGTON AND "CANPA."

(Elevations on page 24.)

- 236-G In Spadina road subway under Canadian Pacific railway in the city of Toronto. West concrete abutment, south end of east face, 3 feet above concrete sidewalk. Also 24 feet north of south line of C.P.R. right of way.
- 237-G In Dovercourt road subway under Canadian Pacific railway in the city of Toronto. West concrete abutment, south end of east face, 3 feet above concrete sidewalk. Also 24 feet north of south line of C.P.R. right of way.
- 238-G In Weston road bridge over Canadian Pacific railway, West Toronto. Concrete pier at south end of steel truss and at east side of bridge; centre of north face of pier, 2 feet above concrete footing.
- 239-G In top of concrete bench-mark pier, 1½ miles northwest of West Toronto station and between the tracks of Grand Trunk railway (Toronto-Stratford line) and Canadian Pacific railway (Toronto-Sudbury line), 37 feet southwest of the latter. Between sixth and seventh telegraph poles northwest of C.P.R. mile post 1 and 840 feet southeast of an overhead crossing of the Weston road.

- 240-G In West Toronto post office, corner of Dundas and Keele streets. Ke street wall, 30 inches north of entrance to Customs department and in third course of stonework below brickwork.
- 241-G In Runnymede road subway under Canadian Pacific railway, 1 mile west of Keele street, West Toronto. West concrete abutment, south end of east face, 3 feet above concrete sidewalk. Also 10 feet north of south line of C.P.R. right of way.
- 242-G In Canadian Pacific railway bridge over Humber river, $\frac{1}{4}$ mile west of Lambton flag station. Northeast concrete retaining wall, 2 feet 8 inches below top and 8 feet 6 inches from east end of wall.
- 243-G In Canadian Pacific railway bridge over Mimico creek and Toronto Suburban (electric) railway, 850 feet east of Islington station. Concrete retaining wall behind west abutment, south end of east face, 2 feet above bridge seat.
- 244-G In square concrete culvert under Canadian Pacific railway, $\frac{1}{4}$ mile west of Islington and 300 feet east of junction switch at "Obico". West end of south face of culvert, 6 inches below top.
- 245-G In top of concrete bench-mark pier, $1\frac{1}{4}$ miles southwest of Mimico station, 3 feet northwest of southeast line of Grand Trunk railway right of way and 205 feet southwest of signal tower at "Canpa," the junction of C.P.R. cut-off from Islington with G.T.R. Toronto-Hamilton line.
- 171 In Grand Trunk railway bridge over Etobicoke creek, 3 miles southwest of Mimico. East retaining wall, northeast face of cap-stone.

TABLE II.
RESULTS OF PRECISE LEVELLING
MONTREAL TO HULL, QUE.

Run by W. N. McGrath and F. B. Reid.

BENCH-MARK		Distance between successive bench- marks	Distance from bench- mark 818	DISCREPANCY		Elevation above mean sea level	BENCH-MARK
From	To			Partial	Total		
No.	No.	Miles	Miles	Feet	Feet	Feet	No.
	818					203.377	818
818	826	0.9	0.9	-.012	-.012	182.493	826
826	827	2.1	3.0	+.010	-.002	95.966	827
827	828	1.6	4.6	-.007	-.009	67.439	828
828	829	2.9	7.5	-.014	-.023	107.077	829
829	830	2.0	9.5	+.003	-.020	142.997	830
830	831	2.8	12.0	-.010	-.030	86.944	831
831	832	3.1	15.1	+.011	-.019	149.569	832
832	833	3.4	18.5	+.004	-.015	151.486	833
833	834	2.7	21.2	-.012	-.027	199.391	834
834	835	3.1	24.3	-.022	-.049	219.092	835
835	835-A	3.9	28.2	+.029	-.020	232.358	835-A
835-A	836	0.4	28.6	-.003	-.023	244.081	836
835-A	837	6.6	34.8	+.025	+.005	242.655	837
837	838	4.9	39.7	+.008	+.013	224.278	838
838	839	0.5	40.2	+.004	+.017	207.085	839
839	840	5.9	46.1	+.025	+.043	261.608	840
840	841	4.3	50.4	+.024	+.067	251.889	841
841	842	2.1	52.5	+.004	+.071	222.425	842
842	843	0.3	52.8	-.002	+.069	199.142	843
843	844	4.1	56.9	-.003	+.066	188.815	844
844	845	2.4	59.3	+.010	+.076	188.998	845
845	846	3.6	62.9	+.010	+.086	162.610	846
846	847	3.5	66.4	-.028	+.058	169.007	847
847	848	3.2	69.6	+.011	+.069	159.285	848
848	849	1.1	70.7	+.009	+.078	169.230	849
849	850	3.8	74.5	-.003	+.075	155.218	850
850	850-A	1.2	75.7	+.006	+.081	186.272	850-A
850-A	851	1.4	77.1	-.007	+.074	174.447	851
851	852	3.7	80.8	-.029	+.045	184.202	852
852	852-A	0.7	81.5	+.005	+.050	186.700	852-A
852-A	853	1.2	82.7	+.013	+.063	181.362	853
853	854	3.0	86.0	+.021	+.064	184.401	854
854	855	4.8	91.4	+.029	+.113	175.772	855
855	856	3.6	95.0	-.012	+.101	178.075	856
856	857	2.0	97.0	-.002	+.099	183.565	857
857	858	3.7	100.7	+.006	+.105	180.897	858
858	859	2.1	102.8	+.020	+.125	160.162	859
859	860	3.1	105.9	+.006	+.131	149.968	860
860	861	0.5	106.4	-.004	+.127	186.047	861
861	862	3.2	109.6	+.026	+.153	176.855	862
862	862-A	0.5	110.1	+.004	+.157	174.844	862-A
862-A	863	2.8	112.9	-.010	+.147	153.910	863
863	864	1.4	114.3	-.003	+.144	157.706	864
863	462	1.3	114.2	-.017	+.130	163.315	462*

* The observed elevation of the junction bench-mark 462 was 163.565

RESULTS OF PRECISE LEVELLING
ST. MARTIN JUNCTION TO THREE RIVERS, QUE.

Run by W. N. McGrath.

BENCH-MARK		Distance between successive bench- marks	Distance from bench- mark 839	DISCREPANCY		Elevation above mean sea level	BENCH-MARK
From	To			Partial	Total		
No.	No. 839	Miles	Miles	Feet	Feet	Feet 107.077	No. 839
839	884-B	0.4	0.4	+ .003	+ .003	99.007	884-B
884-B	885-B	1.9	2.3	- .080	- .027	70.232	885-B
885-B	886-B	1.7	4.0	- .005	- .032	79.599	886-B
886-B	887-B	5.8	9.8	- .061	- .093	50.781	887-B
887-B	888-B	0.2	10.0	+ .001	- .092	57.185	888-B
887-B	889-B	4.9	14.7	- .004	- .097	69.106	889-B
888-B	890-B	2.5	17.2	+ .021	- .076	52.326	890-B
889-B	891-B	2.0	19.2	+ .004	- .072	55.019	891-B
891-B	892-B	3.8	23.0	- .002	- .074	60.547	892-B
892-B	893-B	2.3	25.3	- .018	- .092	79.448	893-B
893-B	894-B	2.3	27.6	- .008	- .100	64.479	894-B
894-B	895-B	1.2	28.8	+ .021	- .079	58.508	895-B
895-B	896-B	6.7	35.5	- .010	- .089	69.194	896-B
896-B	897-B	3.6	39.1	+ .005	- .084	68.916	897-B
897-B	898-B	7.0	46.1	+ .006	- .076	53.510	898-B
898-B	899-B	3.1	49.2	- .020	- .096	33.106	899-B
899-B	700-B	1.3	50.5	- .011	- .107	34.400	700-B
700-B	701-B	2.9	53.4	+ .006	- .101	35.437	701-B
701-B	702-B	3.1	56.5	- .003	- .104	29.564	702-B
702-B	703-B	4.3	60.8	- .021	- .125	44.865	703-B
703-B	704-B	0.3	61.1	- .000	- .125	52.225	704-B
703-B	705-B	4.6	65.4	+ .034	- .091	44.209	705-B
705-B	706-B	0.8	66.2	- .015	- .106	41.067	706-B
706-B	707-B	3.3	69.5	+ .001	- .105	33.595	707-B
707-B	708-B	2.2	71.7	+ .018	- .067	39.454	708-B
708-B	709-B	1.9	73.6	+ .014	- .071	39.623	709-B
709-B	710-B	2.6	76.2	+ .008	- .063	34.997	710-B
710-B	711-B	2.6	78.8	+ .027	- .036	61.888	711-B
711-B	712-B	4.4	83.2	+ .009	- .027	35.748	712-B
712-B	713-B	3.6	86.8	+ .035	+ .008	53.290	713-B
713-B	714-B	0.4	87.2	+ .009	+ .017	54.424	714-B
714-B	715-B	0.3	87.5	- .003	+ .014	53.963	715-B
714-B	716-B	0.2	87.4	+ .003	+ .020	57.103	716-B

Geodetic Survey of Canada

RESULTS OF PRECISE LEVELLING
GRENVILLE, QUE., TO PRESCOTT, ONT.

Run by F. B. Reid.

BENCH-MARK		Distance between successive bench- marks	Distance from bench- mark 842	DISCREPANCY		Elevation above mean sea level	BENCH-MARK
From	To			Partial	Total		
No.	No.	Miles	Miles	Feet	Feet	Feet	No.
842	842	2.2	2.2	-.011	-.011	222.425	842
865	865	1.3	3.5	+.004	-.007	166.467	865
866	867	0.6	4.1	-.002	-.009	170.793	866
867	868	0.4	4.5	+.005	-.004	140.755	867
868	869	0.2	4.7	-.000	-.004	149.239	868
						147.323	869
869	870	4.0	8.7	+.009	+.005	236.254	870
870	871	2.2	10.9	+.002	+.007	255.516	871
871	872	3.9	14.8	-.000	+.007	310.869	872
872	873	3.6	18.4	-.011	-.004	210.867	873
873	874	1.0	19.4	-.014	-.018	230.248	874
874	875	3.6	23.0	+.029	+.011	236.128	875
875	876	3.0	26.0	-.003	+.008	251.492	876
876	877	0.8	26.8	-.000	+.008	297.465	877
876	878	1.8	27.8	+.004	+.012	239.943	878
878	879	2.4	30.2	+.028	+.040	244.111	879
879	880	3.2	33.4	-.033	+.007	204.722	880
880	881	1.5	34.9	-.005	+.002	193.423	881
881	92	0.7	35.6	+.003	+.005	186.360	92*
92	882	2.3	37.9	+.014	+.019	180.578	882
92	93	1.4	37.0	-.007	-.002	193.322	93
93	883	0.7	37.7	-.004	-.006	194.668	883
883	884	2.0	39.7	-.021	-.027	227.814	884
884	885	1.0	40.7	+.009	-.018	197.658	885
885	886	1.7	42.4	-.013	-.031	195.060	886
886	887	3.4	45.8	-.010	-.041	187.404	887
887	888	2.6	48.4	-.008	-.049	185.620	888
888	889	2.3	50.7	-.011	-.060	180.978	889
889	890	3.1	53.8	+.002	-.058	178.820	890
890	891	3.1	56.9	+.014	-.044	172.538	891
891	892	3.7	60.6	-.015	-.059	180.738	892
892	893	3.3	63.9	-.027	-.086	187.733	893

*See next page.

RESULTS OF PRECISE LEVELLING
GRENVILLE, QUE., TO PRESCOTT, ONT.

Run by F. B. Reid.

BENCH-MARK		Distance between successive bench-marks	Distance from bench-mark 842	DISCREPANCY		Elevation above mean sea level	BENCH-MARK
From	To			Partial	Total		
No. 893	No. 894	Miles 0.7	Miles 64.6	Feet -0.006	Feet -0.092	Feet 193.584	No. 894
894	490	1.1	65.7	-0.014	-0.106	194.246	490*
894	895	5.2	69.8	+0.026	-0.066	227.868	895
895	896	1.8	71.6	-0.007	-0.073	220.374	896
896	897	2.7	74.3	-0.000	-0.073	227.889	897
897	898	2.1	76.4	-0.008	-0.081	239.870	898
898	899	2.3	78.7	+0.004	-0.077	238.823	899
899	900	2.9	81.6	-0.024	-0.101	240.621	900
900	901	3.6	85.2	-0.026	-0.127	243.153	901
901	902	1.7	86.9	+0.007	-0.120	234.226	902
902	903	2.6	89.5	+0.019	-0.101	244.026	903
903	904	1.1	90.6	+0.016	-0.085	273.572	904
904	905	0.4	91.0	-0.007	-0.092	264.714	905
904	906	3.1	93.7	+0.016	-0.069	249.288	906
906	907	2.5	96.2	-0.019	-0.088	254.819	907
907	908	1.0	97.2	+0.008	-0.080	247.965	908
908	909	3.2	100.4	-0.002	-0.082	281.055	909
909	910	2.1	102.5	+0.019	-0.063	274.717	910
910	911	3.5	106.0	+0.001	-0.062	279.490	911
911	912	2.6	108.6	-0.016	-0.078	285.627	912
912	118	1.7	110.3	-0.013	-0.091	288.676	118*
118	913	1.3	111.6	-0.001	-0.092	288.347	913
913	914	0.2	111.8	-0.003	-0.095	300.829	914
914	119	0.6	112.4	+0.001	-0.094	313.837	119*

*The observed elevations of the junction bench-marks 92, 490, 118, and 119 were, respectively, 196.273, 194.360, 288.893, and 314.060. See Note after description of bench-mark 93 (Table I).
Connections with Public Works Dept's bench-marks:—
CCCCL—Hawkesbury Roman Catholic church, Elev. 147.513.
DLXII—G.T.R. station, Cornwall, Elev. 194.094.
DLXXX—G.T.R. culvert, Cornwall Jct., Elev. 196.026.

Geodetic Survey of Canada

RESULTS OF PRECISE LEVELLING

IVANHOE TO TORONTO, ONT.

Run by W. N. McGrath and F. B. Reid

BENCH-MARK		Distance between successive bench- marks	Distance from bench- mark 113	DISCREPANCY		Elevation above mean sea level	BENCH-MARK
From	To			Partial	Total		
No.	No.	Miles	Miles	Feet	Feet	Feet	No.
179-G	179-G	3.0	107.1	-.018	+.067	586.659	179-G
187-G	187-G	2.8	110.1	-.022	+.049	616.682	187-G
188-G	188-G	3.4	112.9	-.018	+.027	556.354	188-G
189-G	189-G	4.8	116.3	+.006	+.000	579.882	189-G
190-G	190-G	2.3	121.1	+.008	+.017	629.798	190-G
191-G	191-G	2.1	123.4	+.009	+.026	639.274	191-G
192-G	192-G	2.9	125.5	-.008	+.018	640.805	192-G
193-G	193-G	2.8	128.4	-.006	+.012	644.532	193-G
194-G	194-G	2.8	131.2	+.001	+.013	701.996	194-G
194-G	193-G-2	0.6	131.8	-.000	+.013	698.643	193-G-2
194-G	195-G	3.8	135.0	+.001	+.014	684.705	195-G
195-G	196-G	1.3	136.3	-.003	+.011	677.061	196-G
196-G	197-G	2.1	138.4	-.011	+.000	732.014	197-G
197-G	198-G	5.4	143.8	+.002	+.002	704.790	198-G
198-G	199-G	2.7	146.5	+.019	+.021	692.663	199-G
199-G	200-G	2.0	148.5	+.002	+.023	694.012	200-G
200-G	201-G	2.7	151.2	+.020	+.043	672.145	201-G
201-G	202-G	2.7	153.9	+.026	+.069	637.436	202-G
202-G	203-G	1.5	155.4	+.012	+.081	673.365	203-G
203-G	204-G	1.3	156.7	-.014	+.067	634.497	204-G
204-G	205-G	0.8	157.5	+.003	+.070	644.963	205-G
205-G	206-G	3.1	160.6	-.018	+.052	629.593	206-G
206-G	207-G	3.3	163.9	-.001	+.051	636.484	207-G
207-G	208-G	3.0	166.9	+.017	+.068	697.105	208-G
208-G	209-G	3.3	170.2	+.029	+.097	840.213	209-G
209-G	210-G	1.5	171.7	+.001	+.098	893.540	210-G
210-G	211-G	2.0	173.7	+.009	+.107	967.287	211-G
211-G	212-G	2.5	176.2	+.007	+.114	1044.932	212-G
212-G	213-G	1.6	177.8	+.016	+.130	1072.488	213-G
213-G	214-G	2.1	179.9	-.021	+.109	1090.374	214-G
214-G	215-G	2.4	182.3	+.011	+.120	1099.638	215-G
215-G	216-G	4.4	186.7	+.025	+.145	1056.731	216-G
216-G	217-G	4.6	191.3	+.023	+.168	1028.773	217-G
217-G	218-G	2.1	193.4	+.014	+.182	961.733	218-G
218-G	219-G	2.9	196.3	-.005	+.177	870.963	219-G
219-G	220-G	2.9	199.2	-.009	+.168	852.810	220-G
220-G	221-G	2.6	201.8	-.017	+.151	820.468	221-G
221-G	222-G	1.7	203.5	-.015	+.136	818.233	222-G
222-G	223-G	3.1	206.6	+.012	+.148	810.017	223-G
223-G	224-G	2.1	208.7	+.024	+.172	729.197	224-G
224-G	225-G	2.4	211.1	+.023	+.195	633.175	225-G
225-G	226-G	1.3	212.4	+.006	+.201	664.809	226-G
226-G	227-G	2.4	214.8	+.005	+.206	565.714	227-G
227-G	228-G	1.7	216.5	-.007	+.199	532.707	228-G

Precise Levelling

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RESULTS OF PRECISE LEVELLING

IVANHOE TO TORONTO, ONT.

Run by W. N. McGrath and P. B. Reid.

BENCH-MARK		Distance between successive bench-marks	Distance from bench-mark 113	DISCREPANCY		Elevation above mean sea level	BENCH-MARK
From	To			Partial	Total		
No.	No.	Miles	Miles	Feet	Feet	Feet	No.
228-G	229-G	3.0	219.5	+ .002	+ .201	559.687	229-G
229-G	230-G	1.6	221.1	+ .003	+ .204	566.110	230-G
230-G	231-G	2.0	223.1	.000	+ .204	567.692	231-G
231-G	232-G	2.0	225.1	+ .006	+ .210	461.016	232-G
232-G	233-G	1.8	226.9	+ .006	+ .216	410.169	233-G
233-G	234-G	2.0	228.9	+ .005	+ .221	425.869	234-G
234-G	235-G	1.3	230.2	+ .014	+ .235	399.410	235-G
235-G	189		230.2	- .004	+ .231	405.106	189*

* The observed elevation of the junction bench-mark 189 was 404.754.
Connections with Public Works Dept's bench-marks:-

MCCXXII-Trent Canal lift-lock, Peterboro, Elev. 636.503.

MCCXXI-C P R. bridge over Otonabee river, Peterboro, Elev. 651.356.

DCXXII-Old C P R. station, North Toronto, Elev. 406.401.

RESULTS OF PRECISE LEVELLING

BETHANY TO PORT HOPE, ONT.

Run by F. B. Reid

BENCH-MARK		Distance between successive bench-marks	Distance from bench-mark 209-G	DISCREPANCY		Elevation above mean sea level	BENCH-MARK
From	To			Partial	Total		
No.	No.	Miles	Miles	Feet	Feet	Feet	No.
	209-G					840.213	209-G
200-G	915	3.2	3.2	+ .007	+ .007	819.551	915
915	916	1.5	4.7	+ .013	+ .020	701.538	916
916	917	5.8	10.5	- .031	- .011	806.809	917
917	918	3.2	13.7	- .029	- .040	630.602	918
918	919	4.0	17.7	- .017	- .057	480.661	919
919	920	4.3	22.0	+ .034	- .023	310.087	920
920	172-A	1.0	23.0	+ .008	- .015	267.835	172-A*
172-A	172	0.1	23.1	+ .004	- .011	257.027	172
172-A	921	0.3	23.3	- .007	- .022	271.471	921
921	173	0.3	23.6	+ .003	- .019	287.835	173*

* The observed elevations of the junction bench-marks 172-A and 173 were respectively 267.297 and 287.311.

Geodetic Survey of Canada

RESULTS OF PRECISE LEVELLING

MYRTLE TO WHITBY, ONT.

Run by F. B. Reid

BENCH-MARK		Distance between successive bench-marks	Distance from bench-mark 219-G	DISCREPANCY		Elevation above mean sea level	BENCH-MARK
From	To			Partial	Total		
No.	No.	Miles	Miles	Feet	Feet	Feet	No.
	219-G					870.963	219-G
219-G	922	3.4	3.4	-.004	-.004	611.501	922
922	923	1.2	4.6	+.004	-.000	539.338	923
923	924	2.5	7.1	-.004	-.004	471.496	924
924	925	3.0	10.1	+.002	-.002	359.489	925
925	926	1.3	11.4	-.005	-.007	314.060	926
926	180-A	1.9	13.3	-.008	-.015	288.846	180-A*
180-A	927	1.4	14.7	-.006	-.021	250.356	927

* The observed elevation of the junction bench-mark 180-A was 238.379.

RESULTS OF PRECISE LEVELLING

NORTH TORONTO TO MIMICO, ONT.

Run by F. B. Reid

BENCH-MARK		Distance between successive bench-marks	Distance from bench-mark 235-G	DISCREPANCY		Elevation above mean sea level	BENCH-MARK
From	To			Partial	Total		
No.	No.	Miles	Miles	Feet	Feet	Feet	No.
	235-G					399.410	235-G
235-G	236-G	0.9	0.9	-.008	-.008	403.280	236-G
236-G	237-G	1.3	2.2	-.006	-.014	398.935	237-G
237-G	238-G	1.4	3.6	+.004	-.010	395.794	238-G
238-G	239-G	1.2	4.8				239-G†
238-G	240-G	0.4	4.0	+.005	-.005	389.790	240-G
238-G	241-G	1.1	4.7	+.002	-.008	390.399	341-G
241-G	242-G	1.5	6.2	+.004	-.004	396.424	242-G
242-G	243-G	1.2	7.4	+.010	+.006	399.294	243-G
243-G	244-G	1.0	8.4	+.015	+.021	397.692	244-G
244-G	245-G	2.7	11.1	+.023	+.044	316.081	245-G
245-G	191	1.3	12.4	+.017	+.061	288.356	191*

† The elevation of bench-mark 239-G has not yet been determined.

* The observed elevation of the junction bench-mark 191 was 289.333.

TABLE III.
RAIL ELEVATIONS, MONTREAL TO HULL, QUE.

(Elevations taken in 1917 and 1918)

	FEET.
Canadian Pacific Railway—Montreal, Place Viger Station.....	58.1
" Hochelaga.....	77.2
" Angus.....	180.3
" Mile End.....	222.7
" Breslay (signal tower).....	193.9
" Jacques Cartier Junction.....	98.2
" Bordeaux.....	75.4
" Rivière-des-Prairies; water, June 12, 1917, 58.8; rail.....	73.8
" Laval Rapides.....	74.3
" St. Martin.....	107.2
" St. Martin Junction.....	109.2
" Ste. Rose.....	90.0
" Rivière-des-Milles Îles; water, June 13, 1917, 69.0; rail.....	59.5
" Rosemere.....	91.3
" Ste. Thérèse.....	121.3
" St. Augustin.....	223.4
" Ste. Scholastique.....	237.2
" St. Hermas.....	255.3
" Lachute.....	228.0
" North river; water, September 20, 1917, 194.0; rail.....	209.1
" Canadian Northern railway (diamond crossing).....	250.0
" Staynerville.....	260.2
" Chatboro.....	311.8
" Magnésie.....	256.4
" Grenville.....	209.1
" Calumet.....	195.0
" Rouge river; water, October 9, 1917, 132.9; rail.....	178.1
" Pointe-au-Chêne.....	187.1
" Fassett.....	169.9
" Kinouge river; water, October 26, 1917, 128.9; rail.....	161.4
" Montebello.....	170.7
" Papineauville.....	155.0
" Plaisance.....	187.2
" Petite Nation river; water, May 9, 1918, 134.7; rail.....	185.7
" Thurso.....	185.9
" Blanche river; water, May 14, 1918, 135.5; rail.....	70.7
" Lochaber.....	180.5
" Buckingham Junction.....	190.0
" Lièvre river; rail at centre of bridge.....	188.3
" Angers.....	187.5
" Little Blanche river; water, May 20, 1918, 143.4; rail.....	168.9
" Blanche river; water, May 22, 1918, 137.8; rail.....	154.8
" East Templeton.....	159.3
" Gatineau.....	178.2
" Gatineau river; water, May 25, 1918, 138.7; rail.....	182.1
" Canadian Pacific railway, Ottawa-Maniwaki line (under crossing)	
rail 151.7; North Shore line rail.....	177.1
" Hull.....	190.9

RAIL ELEVATIONS, ST. MARTIN JUNCTION TO THREE RIVERS, QUE.

(Elevations taken in 1917)

Canadian Pacific Railway—St. Martin Junction.....	109.2
" Le Cap.....	100.5
" St. Vincent-de-Paul.....	72.1
" De Sales.....	54.3
" Rivière-des-Milles Îles; water, June 23, 1917, 26.7; rail.....	54.4
" Terrebonne.....	50.6
" Mascouche.....	62.8
" Mascouche river; water, July 9, 1917, 26.4; rail.....	62.2
" Cabane Ronde.....	59.2
" L'Épiphanie.....	72.7
" Canadian Northern railway (diamond crossing).....	72.4
" Achigan river; water, July 7, 1917, 24.0; rail.....	72.4
" St. Esprit river; water, July 7, 1917, 26.8; rail.....	68.3
" L'Assomption river; water, July 11, 1917, 24.2; rail.....	83.3
" Vaucluse.....	76.0

RAIL ELEVATIONS, ST. MARTIN JUNCTION TO THREE RIVERS, QUE.—*Continued.*

(Elevations taken in 1917)

Canadian Pacific Railway—Lavaltrie.....	85.3
" Lanoraie.....	68.4
" Paquette.....	84.4
" Chaloupe river; water July 19, 1917, 21.8; rail.....	56.6
" Berthier Junction.....	36.7
" Bayonne river; water, July 21, 1917, 16.4; rail.....	37.0
" Chicot river; water, July 23, 1917, 16.0; rail.....	37.9
" St. Cuthbert.....	37.8
" St. Barthélemi.....	33.0
" Maskinongé river; water, August 8, 1917, 17.6; rail.....	48.8
" Maskinongé.....	48.9
" Louiseville.....	42.4
" Rivière-du-Loup; water, August 10, 1917, 15.9; rail.....	44.2
" Yamachiche.....	33.8
" Yamachiche river; water, August 11, 1917, 23.6; rail.....	43.5
" Pointe-du-Lac.....	67.7

RAIL ELEVATION, GRENVILLE, QUE. TO PRESCOTT, ONT.

(Elevations taken in 1918)

Canadian Pacific Railway—Grenville.....	209.1
Canadian Northern Ry.—Grenville.....	174.5
" Grenville canal; water 128.6; rail.....	174.8
" Ottawa river; water, May 29, 1918, 117; rail (centre of bridge).....	174.5
" Hawkesbury.....	182.4
Grand Trunk Railway—Hawkesbury.....	142.9
" Canadian Northern railway (diamond crossing).....	159.9
" Canadian Pacific railway, Ottawa-Vaudreuil line (diamond crossing).....	283.8
" Vankleek Hill.....	296.0
" Rigaud river; water, June 10, 1918, 194.2; rail.....	214.8
" Dalkeith.....	229.1
" Glen Sandfield.....	237.8
" Glen Robertson.....	263.1
" Interprovincial boundary, Ontario-Quebec.....	244.6
" Ste. Justine.....	247.3
" Canadian Pacific railway, diamond crossing at St. Polycarpe Junction.....	194.1
" St. Polycarpe.....	177.6
Canadian Pacific Railway—Delisle river; water, June 17, 1918, 157.7; rail.....	193.8
" Soulanges, junction switch.....	200.5
" Laberge.....	210.2
" Baudet river; water, June 17, 1918, 183.2; rail.....	197.7
" Bridge End.....	198.5
" North Lancaster.....	186.5
" Glen Gordon.....	182.3
" Williamstown.....	182.1
" Raisin river; water, June 27, 1918, 157.6; rail.....	181.6
" Glenbrook.....	176.6
" Grand Trunk railway, main line (diamond crossing).....	191.0
" Cornwall.....	182.7
Grand Trunk Railway—Cornwall.....	192.9
" Ottawa & New York railway, diamond crossing at Cornwall Junction.....	201.7
" Mille Roches.....	226.0
" Moulinette.....	233.6
" Wales.....	237.3
" Farran Point.....	242.6
" Aultsville.....	247.6
" Morrisburg.....	271.1
" Iroquois.....	245.1
" Cardinal.....	278.8
" Canadian Pacific railway, Ottawa-Prescott line (under crossing) rail, 284.6; G. T. R. rail.....	304.6
" Prescott.....	310.9
Canadian Pacific Railway—Prescott.....	260.3

RAIL ELEVATIONS, IVANHOE TO TORONTO, ONT.

(Elevations taken in 1916 and 1918)

Canadian Pacific Railway—Ivanhoe.....	610.3
" Peterson.....	561.2
" Canadian Northern railway, Trenton Maynooth line, diamond crossing at Bonarlaw.....	598.3
" Crow river; water, October 16, 1916, 582.9; rail.....	600.4
" Tiffin.....	544.3
" Havelock.....	701.0
" Norwood.....	671.9
" Asphodel (flag station).....	728.5
" Indian River.....	710.3
" Otonabee.....	677.1
" Trent canal; water 632.0; rail.....	640.6
" Otonabee river; water, Aug. 22, 1918, 620.5; rail.....	632.5
" Peterboro.....	631.4
" Grand Trunk railway, Port Hope-Peterboro line (diamond crossing).....	636.8
" Kendry (flag station).....	655.9
" Cavan.....	645.6
" Grand Trunk railway, Millbrook-Omemee Junction line (under crossing) rail 839.1; C.P.R. rail.....	864.7
" Bethany Junction.....	855.5
" Manvers.....	969.1
" Pontypool.....	1,067.1
" Burketon.....	1,057.0
" Brady.....	1,064.1
" Myrtle.....	888.8
" Grand Trunk railway, Whitby-Lindsay line (overhead crossing) rail 893.0; C.P.R. rail.....	870.4
" Dagmar.....	861.0
" Glen Major.....	843.5
" Claremont.....	897.0
" Atha Road.....	747.5
" Locust Hill.....	666.2
" Little Rouge creek; water, Sept. 17, 1918, 597.7; rail.....	636.7
" Rouge creek; water, Sept. 17, 1918, 483.1; rail.....	526.3
" Browns Corner.....	563.4
" Agincourt.....	565.5
" Grand Trunk railway, Lindsay-Scarboro Junction line (under crossing) rail 543.7; C.P.R. rail.....	570.2
" Wexford.....	537.6
" Canadian Northern railway (under crossing) rail 373.8; C.P.R. rail (eastbound track).....	458.0
" Donlands.....	448.8
" Leaside.....	430.2
" North Toronto (centre of Yonge street subway).....	417.2

RAIL ELEVATIONS, PETERBORO TO PORT HOPE, ONT.

(Elevations taken in 1918)

Grand Trunk Railway—Peterboro.....	647.6
" Canadian Pacific railway, main line (diamond crossing).....	636.8
" Millbrook, Peterboro track.....	768.6
" Millbrook, Omemee Junction track.....	770.0
" Carmel.....	908.3
" Campbellcroft.....	627.3
" Perrytown.....	642.1
" Quay.....	475.5
" Smith creek; water, August 2, 1918, 310.9; rail.....	328.5
" Canadian Northern railway, Toronto-Ottawa line (overhead crossing) rail 348.8; G.T.R. rail.....	304.8
" Smith creek; water, August 2, 1918, 292.2; rail.....	298.1
" Smith creek; water, August 2, 1918, 272.9; rail.....	280.8
" Port Hope (centre of Walton street).....	278.3
" Canadian Pacific railway, Lake Ontario Shore line (overhead crossing) rail 294.6; G.T.R. rail.....	270.0
" Port Hope Junction.....	286.8

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RAIL ELEVATIONS, MYRTLE TO WHITBY, ONT.

(Elevations taken in 1918)

Grand Trunk Railway—Myrtle	822.0
" Brooklin	537.3
" Canadian Northern railway, Toronto-Ottawa line (diamond crossing)	480.8
Canadian Northern Ry.—Brooklin	476.2
Grand Trunk Railway—Canadian Pacific railway, Lake Ontario Shore line (diamond crossing)	299.3
" Toronto and Eastern (electric) railway, diamond crossing	291.5
" Whitby (town station)	286.2
" Whitby Junction	276.3

RAIL ELEVATIONS, NORTH TORONTO TO MIMICO, ONT.

(Elevations taken in 1918)

	FEET
Canadian Pacific Railway—North Toronto (centre of Yonge street subway)	417.2
" Grand Trunk railway, Toronto-North Bay line (diamond crossing)	397.6
" Grand Trunk railway, Toronto-Stratford line (diamond crossing)	396.0
" Canadian Pacific railway, Toronto-Sudbury line (diamond crossing)	396.0
" West Toronto	390.4
" Lambton	398.8
" Humber river; rail on bridge	399.6
" Toronto Suburban (electric) railway, under crossing, rail 381.4;	
C.P.R. rail	402.6
" Islington	402.7
" Obico, junction switch	399.6
" Canpa, junction switch	317.9

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Agincourt, Ont.	229-G, 230-G	1919	15	23
Allea Craig, Ont.	343	1914	220	296
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Albert Canyon, B.C.	303-C	1917	270	310
Alcove, Que.	472	1914	218	234
Aldergrove, B.C.	24-J	1916	170	191
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Alix, Alta.	61-F, 62-F	1916	165	187
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Almonte, Ont.	64-G, 65-G, 66-G	1917	250	293
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Amherst, N.S.	545-B to 548-B	1916	146	173
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Appin, Ont.	240	1913	56	81
Apple Hill, Ont.	100	1917	285	320
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Arnprior, Ont.	73-G, 74-G, 75-G	1917	250	293
Aroostook, N.B.	41-B	1917	277	314
Artland, Sask.	28-H	1915	20	34
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Athalmer, B.C.	153-D	1917	265	305
Atwood, Ont.	309	1913	61	83
Auburn, N.S.	487-B	1916	145	175
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Cartwright, Man.	20-C	1913	67	87
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Chauvin, Alta.	30-H	1915	21	34
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Chester, N.S.	401-B	1915	10	28
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Colborne, Ont.	166	1917	288	322
Coldbrook, N.S.	491-B	1916	148	175
Coldwater, Ont.	399-A	1913	65	86
Coleman, Alta.	105-D	1917	262	304
Collins Bay, Ont.	144	1917	267	321
Compton, Que.	10	1917	263	319
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Conn Mills, N.S.	139-B	1913	46	74
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Copetown, Ont.	216-A	1913	55	80
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Cowley, Alta.	216-C†	1915	25	37
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Craik, Sask.	392	1913	65	86
Cranbrook, B.C.	16-D	1913	72	90
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Dalhousie Mills, Ont.	95	1917	285	320
Dalkeith, Ont.	873, 874	1919	11	20
Danby, Que.	633-B	1918	10	23
Danville, Que.	679-B	1918	12	43
Dauntless, Alta.	171-C	1915	22	35
Davidson, Sask.	18-D	1914	227	240
Dawson, Y.T.	223, 224	1912	34	34
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Dundas, Ont.	215	1913	55	80
Dundurn, Sask.	25-D	1914	227	240
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Eastwood, Ont.	225	1913	55	80
Echo Bay, Ont.	626	1916	157	182
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Graceton, Minn.	14-E	1914	226	239
Grafton, Ont.	168	1913	53	79
Grainger, Alta.	50-F	1916	164	187
Grand Coulee, Sask.	101-C	1913	71	89
Grand Falls, N.B.	46-B	1917	277	314
Grand Ligne, Que.	78	1917	280	317
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Hallcock, Minn.	2-C	1913	66	87
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Hampton, N.B.	109-B	1913	44	73
Hanley, Sask.	23-D	1914	227	240
Hanover, Ont.	298, 299	1913	60	83
Hantsport, N.S.	500-B	1916	149	176
Harlaka Jct., Que.	219-B	1913	52	77
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Hawthorne, Ont.	502	1914	220	235
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Henfryn, Ont.	310	1913	61	83
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Heron Bay, Ont.	742, 742-A	1918	19	39
Hesper, Ont.	86-F	1918	14	36
Hillhurst, Que.	13	1917	283	319
Hillsburgh, Ont.	128-F	1918	16	37
Holden, Alta.	46-H	1916	163	186
Holland Centre, Ont.	281	1913	59	82
Holmesville, Ont.	322	1913	62	83
Holmfild, Man.	22-C	1913	67	87
Hope, B.C.	42-J, 43-J	1918	24	42
Howick Jct., Que.	87	1917	284	320
Hubbards, N.S.	397-B	1915	9	28
Hull, Que.	459, 460	1914	217	234
Humes, Y.T.	132	1912	31	31
Huntingdon, B.C.	26-J, 27-J	1916	170	191
Hyde Park Jct., Ont.	341	1913	63	84
Iberville, Que.	74	1917	280	317
Ilderton, Ont.	339	1913	63	84
Indian River, Ont.	198-G	1919	14	22
Indian River, Y.T.	205	1912	33	33
Ingersoll, Ont.	229, 230	1913	56	80
Inkerman, Ont.	110	1917	289	320
Irma, Alta.	39-H	1916	162	185
Iroquois, Ont.	907, 908	1919	13	21
Irvine, Alta.	150-C, 160-C	1915	22	35
Islington, Ont.	243-G, 244-G	1919	17	25
Ivanhoe, Ont.	179-G	1917	257	296
Jackfish, Ont.	757	1918	19	39
Jaffray, B.C.	131-D, 132-D	1917	264	305
James River, N.S.	169-B	1913	47	74
Jasper, Alta.	104-H	1917	274	312
Jasper, Ont.	97-G	1917	252	298
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Jordan, Ont.	205	1913	63	85
Juniata, Sask.	6-H	1915	19	34
Kakabeka Falls, Ont.	85-E	1916	161	194
Kamloops, B.C.	353-C to 355-C	1918	31	45
Kamloops Jct., B.C.	87-J	1918	26	43
Kasabasua, Que.	479	1914	218	234
Kearney, Ont.	552	1915	14	31
Keewatin, Ont.	34-F	1915	19	33

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Kenora, Ont.....	37-F, 37-F, 38-F	1915	19	33
Kentville, N.S.....	42-B to 494-B	1916	148	175
Kilburn, N.B.....	57-B	1917	277	314
Killaloe, Ont.....	518, 519	1915	16	32
Killarney, Man.....	25-C	1913	67	87
Kingsey, Que.....	677-B	1918	12	44
Kingston, N.S.....	486-B	1916	145	175
Kingston, Ont.....	139, 141, 141-A, 142	1917	287	321
Kipp, Alta.....	81-D	1915	25	38
Kippen, Ont.....	330	1913	62	84
Kirkcaldy, Alta.....	70-D	1915	26	38
Kirk Ferry, Que.....	465, 466	1914	218	234
Kitchener, Ont.....	95-F to 97-F	1918	15	36
Kleinburg, Ont.....	258	1913	58	82
Knowlton, Que.....	49	1917	282	318
Komoka, Ont.....	237-A	1913	56	80
Kootenay Landing, B.C.....	204-D, 205-D	1917	268	308
Lac Baker, N.B.....	267-B	1917	247	290
Lachute, Que.....	838	1919	7	18
Lacolle, Que.....	583-B	1918	8	32
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Laprairie, Que.....	596-B	1918	8	32
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Liverpool, N.S.....	418-B, 419-B, 420-B	1915	11	29
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Malagash, N.S.	144-B	1913	46	74
Mallorytown, Ont.	128	1917	286	321
Manitou, Man.	11-C, 12-C	1913	66	87
Maple Creek, Sask.	145-C, 146-C	1914	231	241
Markdale, Ont.	279	1913	50	82
Marysville, Ont.	152	1917	288	321
Mascouche, Que.	689-B	1919	9	19
Maskinongé, Que.	703-B, 704-B	1919	10	19
Massawippi, Que.	28-A	1913	48	75
Masson, Que.	857	1919	8	18
Massey, Ont.	590	1916	155	181
Mather, Man.	17-C	1913	67	87
Matsqui, B.C.	30-J	1918	24	42
McAdam, N.B.	11-B	1917	275	313
McBride, B.C.	131-H	1918	23	41
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Meadowville, N.S.	153-L	1913	46	74
Medicine Hat, Alta.	167-C, 168-C, 169-C	1915	22	35
Medora, Man.	40-C	1913	68	88
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Megantic, Que.	21-A-2, 22-A	1913	50	76
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Merrittton, Ont.	209	1913	63	85
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Middleton, N.S.	482-B, 483-B	1916	148	175
Midhurst, Ont.	390	1913	65	86
Midnapore, Alta.	54-D	1915	27	39
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Milestone, Sask.	85-C	1913	70	89
Milk River, Alta.	213-C, 214-C	1915	25	37
Millbrook, Ont.	915, 916	1919	15	24
Mille Roches, Ont.	895	1919	12	21
Millerton, N.B.	47-G	1916	152	178
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Mine Centre, Ont.	42-E	1916	158	183
Minto, Y.T.	106	1912	30	30
Mirror, Alta.	63-F	1916	165	187
Mission, B.C.	30-J	1918	24	42
Molson, Man.	10-F	1915	17	33
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Monckland, Ont.	102	1917	285	320
Moncton, N.B.	132-B, 133-B, 134-B	1913	45	73
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Montebello, Que.	848, 849	1919	8	18
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Nairn, Ont.	579, 580	1916	154	181
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New Dayton, Alta.	206-C, 207-C	1915	24	36
New Germany, N.S.	469-B-2	1916	147	175
New Glasgow, N.S.	180-B	1913	47	74
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New Norway, Alta.	68-F	1916	165	187
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Nobleford, Alta.	79-D	1915	25	38
Nordenskiöld, Y.T.	47	1912	27	27
Northfield, Ont.	494	1914	219	235
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North Lancaster, Ont.	887	1919	12	20
North Portal, Sask.	†	1913	88	88
Northwood, Ont.	245	1913	57	81
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Norwood, Ont.	196-G	1919	13	22
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Oakville, Ont.	193	1913	55	80
Oban, Sask.	14-H	1915	20	34
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Osgoode, Ont.	117-A, 118-A	1913	52	78
Oshawa, Ont.	178-A, 179-A, 179	1913	54	79
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Oxbow, Sask.	55-C	1913	69	88
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"	135-B	1916	146	173
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Palgrave, Ont.	376	1913	64	86
Palmerston, Ont.	308	1913	61	83
"	305	1918	16	37
Papineauville, Que.	850, 850-A	1919	8	18
Paquette, Que.	557-B	1916	153	180
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Parkbeg, Sask.	111-C	1914	229	241
Park Head Jet., Ont.	291	1913	60	83
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Perth, N.B.	39-B	1917	277	314
Peterboro, Ont.	202-G to 205-G	1919	14	22
Petitcodiac, N.B.	123-B	1913	45	73
Piapot, Sask.	141-C	1914	231	241
Pickering, Ont.	180-A-2	1913	54	79
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Pincher, Alta.	94-D	1917	262	304
Pinewood, Ont.	20-E	1914	226	239
Pinto, Sask.	67-C	1913	69	88
Plaster Rock, N.B.	301-B, 302-B	1914	213	232
Plessisville, Que.	665-B, 666-B	1918	12	34
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Pointe Gatineau, Que.	863, 864	1919	9	18
Pomquet, N.S.	76-B	1913	48	74
Pontypool, Ont.	213-G	1919	14	22
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Port Clyde, N.S.	412-B	1915	12	29
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Port Dalhousie, Ont.	133-F, 134-F	1918	17	38
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"	920, 921	1919	16	24
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Prescott, Ont.	118, 119, 913, 914	1919	13	21
Preston, Ont.	83-F, 84-F	1918	14	36
Prince Albert, Sask.	47-D, 48-D, 49-D	1914	228	240
Princeton, Ont.	224	1913	55	80
Princeville, Que.	668-B	1918	12	34
Pubnico, N.S.	454-B	1915	13	30
Quarryville, N.B.	45-G	1916	152	178
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Rose Point, Ont.	565	1915	13	31
Rossport, Ont.	768	1918	20	40
Rothern, Sask.	40-D	1914	228	240
Rothsay, N.B.	103-B, 104-B	1913	44	73
Rouleau, Sask.	88-C, 89-C	1913	70	89

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Shag Harbour, N.S.	449 B	1915	12	29
Shallow Lake, Ont.	290	1913	60	83
Shannonville, Ont.	154	1917	288	321
Sharbot Lake, Ont.	124 G	1917	253	295
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Shelburne, Ont.	271	1913	59	82
Sherbrooke, Que.	1, 2, 3	1917	283	319
"	35, 36	1917	281	317
"	3	1918	10	33
Sicamous, B.C.	330 C	1918	30	45
Siegas, N.B.	51 B	1917	277	314
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Slate River, Ont.	87 E	1916	161	184
Smiths Falls, Ont.	88 G, 89 G	1917	251 to 253	295
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Spence Bridge, B.C.	45	1918	25	42
Spillimacheen, B.C.	67 J, 68 J	1917	265	306
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Springfield, N.S.	10 E	1916	147	175
Springhill, Que.	472 B	1913	50	76
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Stanbridge, Que.	64 H	1917	282	318
Stanley, Ont.	67	1916	161	184
Stanhurst, Que.	86 E	1913	49	75
Steele, B.C.	34	1917	264	305
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Stewart Crossing, Y.T.	148	1912	32	32
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Stittville, Ont.	203 C, 204 C	1917	249	293
Stoney Creek, Ont.	55 G	1913	63	85
Stoney Point, Ont.	201	1913	57	81
Stonyplain, Alta.	250	1917	271	311
Stottsville, Que.	65-H	1917	280	317
Stratford, Ont.	79	1918	15	36
Sudbury, Ont.	106-F to 108-F	1914	225	238
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Sussex, N.B.	567 A	1916	170	191
Sutton, Que.	26-J, 27-J	1913	44	73
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Sweetgrass, Montana.	52	1916	164	187
Swift Current, Sask.	51-F	1915	25	37
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St. Barthélemi, Que.	702 B	1919	10	19
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St. Edouard, Que. (Napierville Co.)..	589 B	1918	8	32
St. Evariste, Que.	195-B, 196 B	1913	51	77
St. George, N.B.	83 B	1917	279	316
St. Hénédine, Que.	212 B	1913	52	77
St. Henri, Que. (Levis County)	216 B	1913	52	77
St. Hilaire, N.B.	262 B	1917	247	290
St. Hilaire, Que. (Rouville Co.)..	607 B	1918	9	32
St. Honore, Que. (Temiscouata Co.)..	70 B	1917	278	314
St. Hubert, Que.	600 B	1918	9	32
St. Hyacinthe, Que.	611 B to 613 B	1918	9	32
	615-B	1918	10	33
St. Jean Port Joli, Que.	MC VI	1917	†	291
St. John, N.B.	97 B to 100 B	1917	280	316
St. Johns, Que.	75, 76	1917	280	317
St. Joseph-de-Lévis, Que.	220 B	1913	52	77
St. Julie, Que. (Mégantic Co.)..	662 B	1918	11	34
St. Justine, Que. (Vaudreuil Co.)	879	1919	11	20
St. Lambert, Que.	597 B 2, 598 B	1918	9	32
St. Leonard, N.B.	50 B	1917	277	314
St. Liboire, Que.	626 B	1918	9	32
St. Louis, Que. (Beauharnois Co.)	88	1917	284	320
St. Madeleine, Que.	609 B	1918	9	32
St. Malachie, Que.	227 B	1917	244	289
St. Malo, Que. (Compton County)	555 B	1916	153	180
St. Margaret, N.S.	394 B	1915	9	28
St. Martin Jct., Que.	829	1919	7	18
St. Marie, Que. (Beauce Co.)	209 B	1913	51	77
St. Marys, Ont.	110-F, 111-F	1918	15	37
St. Pacôme, Que.	MCXVI	1917	†	292
St. Paschal, Que.	MCX XVI	1917	†	292
St. Philippe-de-Neri, Que.	27 G	1917	248	292
St. Pie, Que. (Bagot County)	618 B	1918	11	33
St. Pierre, Que. (Montmagny Co.)..	565-B	1917	247	291
St. Polycarpe, Que.	882	1919	11	20
St. Polycarpe Jct., Que.	92, 881	1919	11	20
St. Rosalie Jct., Que.	614 B	1918	9	32
St. Rose, Que. (Laval Co.)..	831	1919	7	18
St. Rose, Que. (Temiscouata Co.)	62-B	1917	278	314
St. Rose-de-Lima, Que.	860, 861	1919	8	18
St. Scholastique, Que.	835-A, 836	1919	7	18
St. Stephen, N.B.	2-B, 3 B	1917	275	313
St. Téléphore, Que.	884	1919	11	20
St. Thérèse, Que.	832	1919	7	18
St. Vallier, Que.	MCXXV	1917	†	291
St. Vincent-de-Paul, Que.	686 B	1919	9	19
Taber, Alta	86-C, 187-C	1915	23	36
Taft, B.C.	325-C	1918	30	44
Takhini, Y.T.	20, 21	1912	25	25
Tako, Sask.	20 H	1915	20	34
Tara, Ont.	293	1913	60	83
Tatamagouche, N.S.	147 B	1913	46	74
Terrebonne, Que.	687 B	1919	9	19

† Refer to Public Works Dept.

ALPHABETICAL LIST OF CITIES, TOWNS AND VILLAGES AT OR NEAR WHICH
BENCH-MARKS HAVE BEEN ESTABLISHED—Continued.

Place	B.M. Number	Year of Publication	Description	Elevation
Thamesville, Ont.	243-A	1913	Page	Page
Thedford, Ont.	349	1914	57	81
Thornhill, Man.	9-C	1913	221	236
Thorold, Ont.	210, 211	1913	66	87
Three Hills, Alta.	53-F	1913	63	85
Three Rivers, Que.	713-B to 716-B	1916	164	187
Thurso, Que.	854	1919	10	19
Tichborne, Ont.	146-G	1919	8	18
Tofield, Alta.	50-II, 51-H	1917	255	300
Tompkins, Sask.	138-C	1916	163	186
Toronto, Ont.	185 to 189	1914	231	241
Tottenham, Ont.	234-G to 241-G	1913	54	79
Trenton, Ont.	377-A	1919	15, 16, 17	23, 25
Tring Jet., Que.	161	1913	64	86
Trochu, Alta.	204-B	1917	288	322
Truro, N.S.	55-F	1913	51	77
Tuperville, Ont.	534-B to 537-B	1916	164	187
Tusket, N.S.	369	1916	146	172
Tweed, Ont.	460-B	1914	222	236
Unity, Sask.	174-G to 176-G	1915	13	30
Upper Woods Harbour, N.S.	22-H	1917	256	296
Upton, Que.	451-B	1915	20	34
Utopia, Ont.	627-B, 628-B	1918	12	29
Valleyfield, Que.	387	1913	9	32
Valley Jet., Que.	89	1917	65	86
Van Buren, Maine.	207-B	1913	284	320
Vanceboro, Maine.	50-B	1917	51	77
Vancouver, B.C.	12-B, 13-B	1917	277	314
Vankleek Hill, Ont.	1-J to 5-J	1917	275	313
Vera, Sask.	871	1916	168	190
Verona, Ont.	23-H	1919	11	20
Versailles, Que.	152-G	1915	20	34
Victoriaville, Que.	72	1917	255	300
Viking, Alta.	670-B to 672-B	1917	280	317
Vulcan, Alta.	43-H	1918	12	34
Wabamun, Alta.	68-D, 69-D	1916	162	185
Wainwright, Alta.	69-H	1915	26	38
Wakefield, Que.	36-H	1917	272	311
Wales, Ont.	469, 470	1915	21	34
Walkerville, Ont.	897	1914	218	234
Wallaceburg, Ont.	255	1919	12	21
Walsh, Alta.	367	1913	57	81
Warman, Sask.	155-C	1914	222	236
Warner, Alta.	35-D	1915	22	35
Warroad, Minn.	209-C, 210-C	1914	228	240
Waterville, N.S.	12-E	1915	24	36, 37
Waterville, Que.	674-B, 675-B	1914	226	239
Watt, N.B.	98-F, 99-F	1918	12	34
Webb, Sask.	489-B	1918	15	36
Webbwood, Ont.	9	1916	148	175
Welland, Ont.	8-B	1917	283	319
Welland Jet., Ont.	132-C	1917	275	313
Westchester, N.S.	585	1914	230	241
Westfort, Ont.	213	1916	155	181
West Huntingdon, Ont.	214	1913	64	85
West Merigomish, N.S.	CMLX	1916	†	85
Westmount, Que.	89-E	1916	161	172
Weston, Ont.	181-G	1917	257	184
West Toronto, Ont.	163-B	1913	47	301
Weyburn, Sask.	810	1915	13	74
Whitby, Ont.	256-A	1918	58	35
Whitefish Lake, Que.	238-G to 241-G	1913	16, 17	25
	80-C, 81-C	1919	70	89
	180-A, 920, 927	1913	16	24
	487	1914	219	234

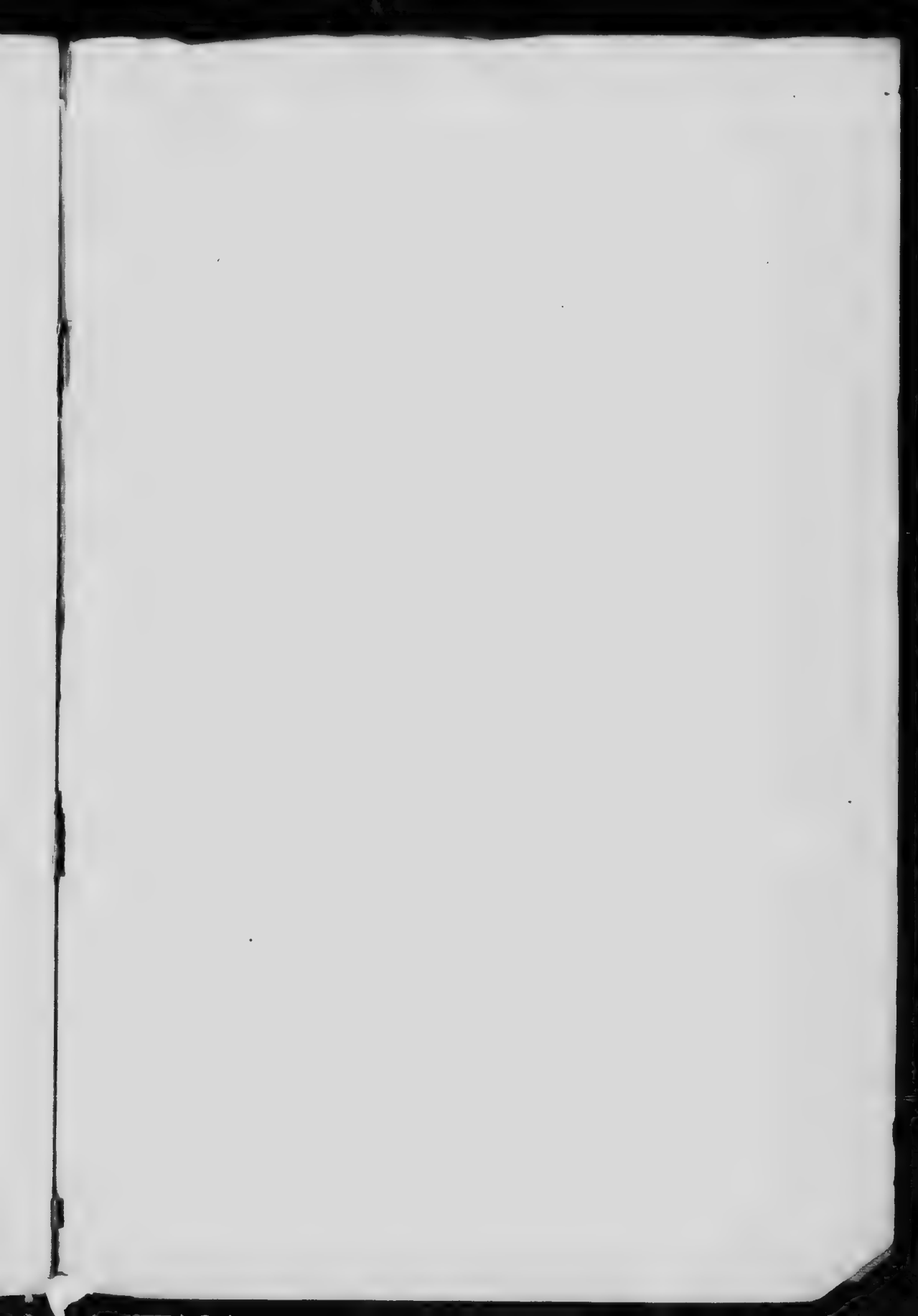
† Refer to Public Works Dept.

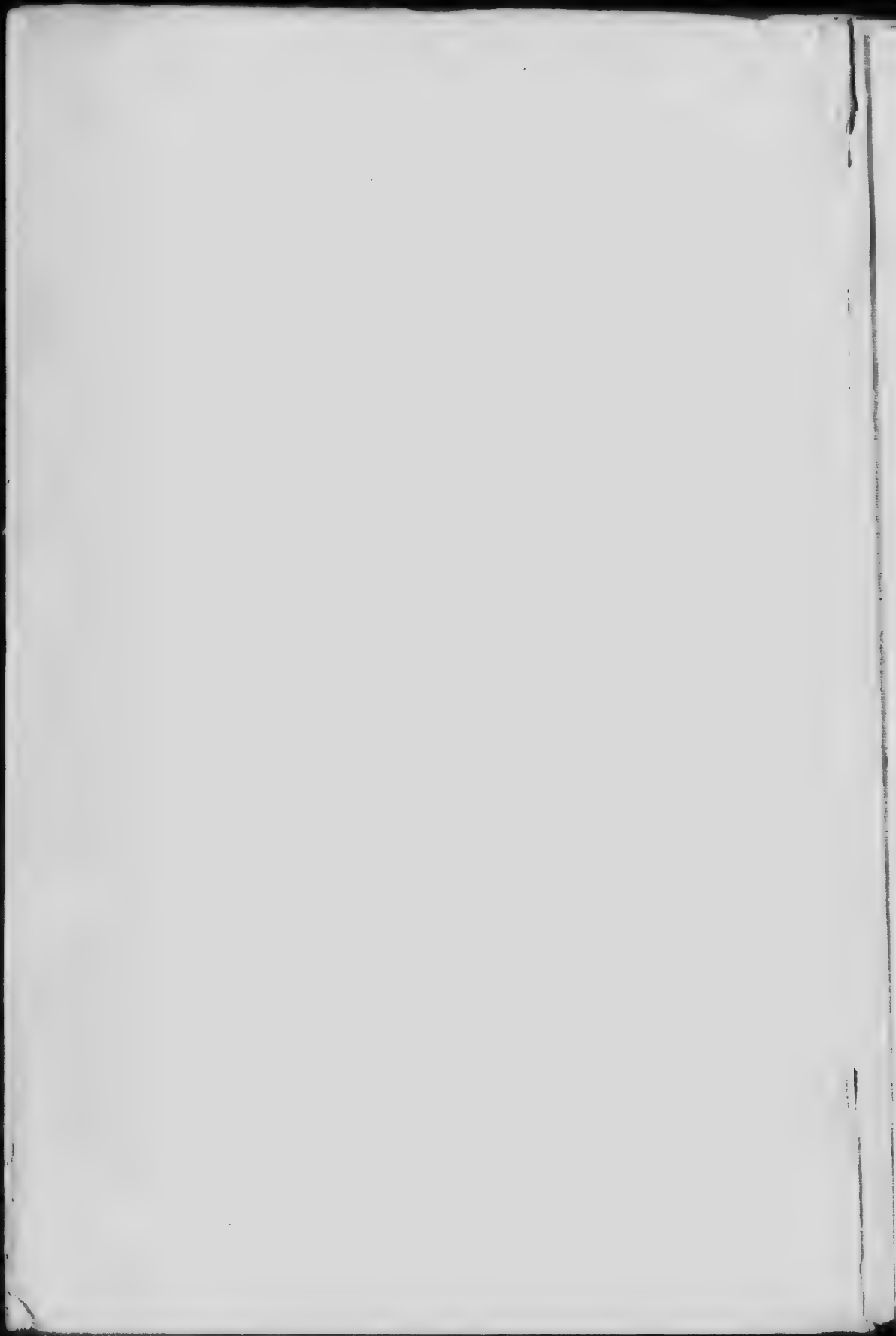
ALPHABETICAL LIST OF CITIES, TOWNS AND VILLAGES AT OR NEAR WHICH
BENCH-MARKS HAVE BEEN ESTABLISHED *Continued.*

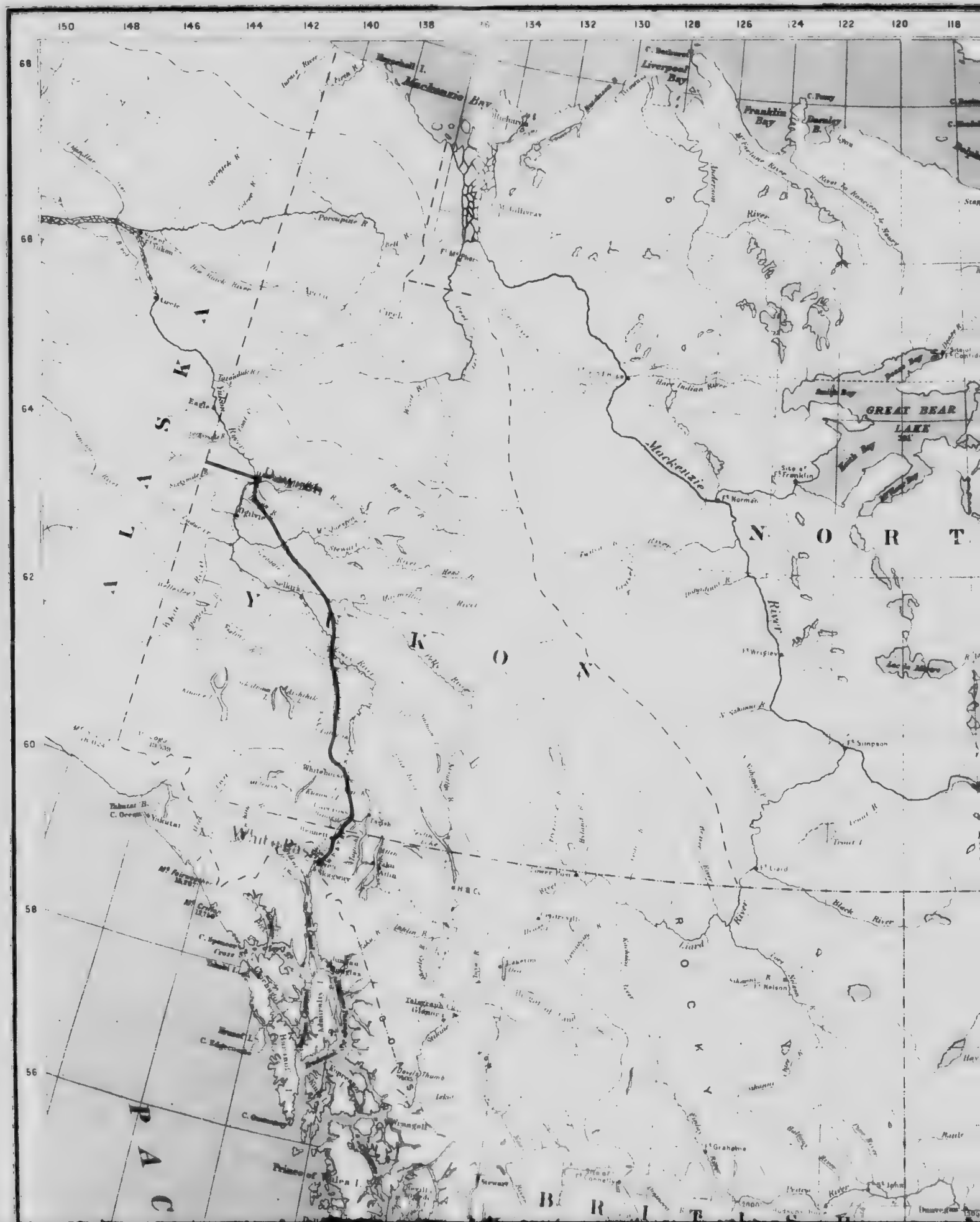
Place	B.M. Number	Year of Publication	Description	Elevation
			Page	Page
Whitehorse, Y.T.	I	1912	25	25
Whitmouth, Man.	14 F	1915	18	33
White Pass, B.C.	22 R, 3 R	1912	23	23
White River, Ont.	723, 723 A	1918	18	30
Whiterock, B.C.	17 J, 18 J	1916	169	190
Whitewater, Man.	35 C	1913	68	88
Whitney, Ont.	536	1915	15	31
Wilcox, Sask.	86 C, 87 C	1913	70	89
Williamstown, Ont.	890	1919	12	20
Wilmot, N.S.	485 B	1916	148	175
Winchester, Ont.	109	1917	285	320
Windsor, Ont.	255	1913	57	81
Windsor, N.S.	502 B to 505 B	1916	119	176
Windsor Jet., N.S.	MXXXIV	1916	1	171
Windsor Mills, Que.	644 B, 645 B	1918	10	33
Wingham, Ont.	314	1913	61	83
Winnifred, Alta.	176 C	1915	23	35
Winnipeg, Man.	1-E, 2 F, 3 F	1915	17	33
Winona, Ont.	202	1913	63	85
Winter, Sask.	25 H	1915	20	34
Wolfville, N.S.	495 B to 497 B	1916	148, 149	175
Woodstock, Ont.	226, 227	1913	55	80
Woodstock, N.B.	25 B, 26 B, 27 B	1917	276	313
Worthington, Ont.	577	1916	154	181
Wounded Moose, Y.T.	179	1912	33	33
Yahk, B.C.	187 D	1917	267	307
Yamachiche, Que.	708 B	1919	10	19
Yarmouth, N.S.	463 B, 464 B, 465 B	1915	13	30
Yellow Grass, Sask.	83-C	1913	70	89
Yukon Crossing, Y.T.	97	1912	29	29
Zumbro, Sask.	27 H	1915	20	34

† Refer to Public Works Dept.

February, 1919.



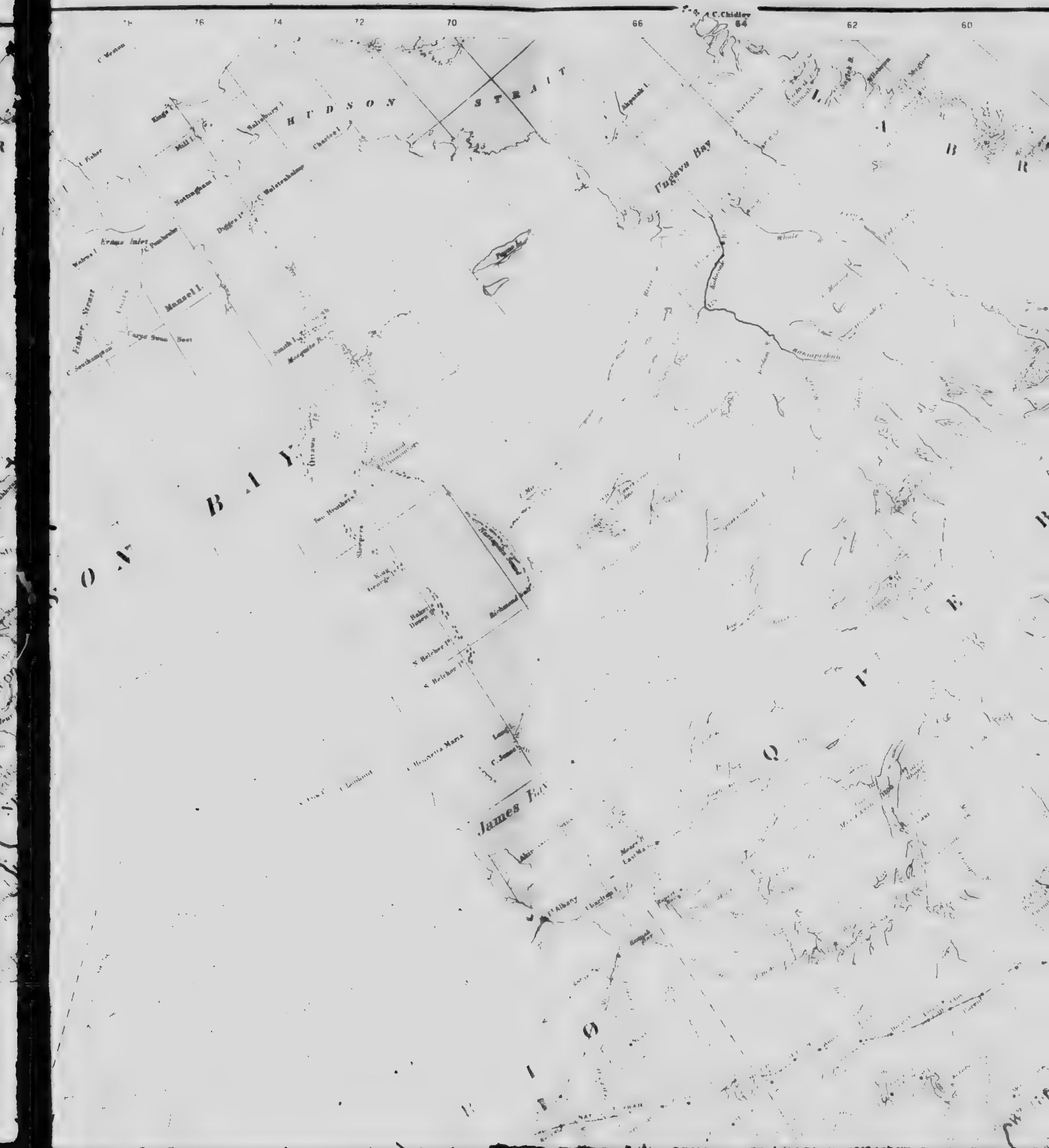






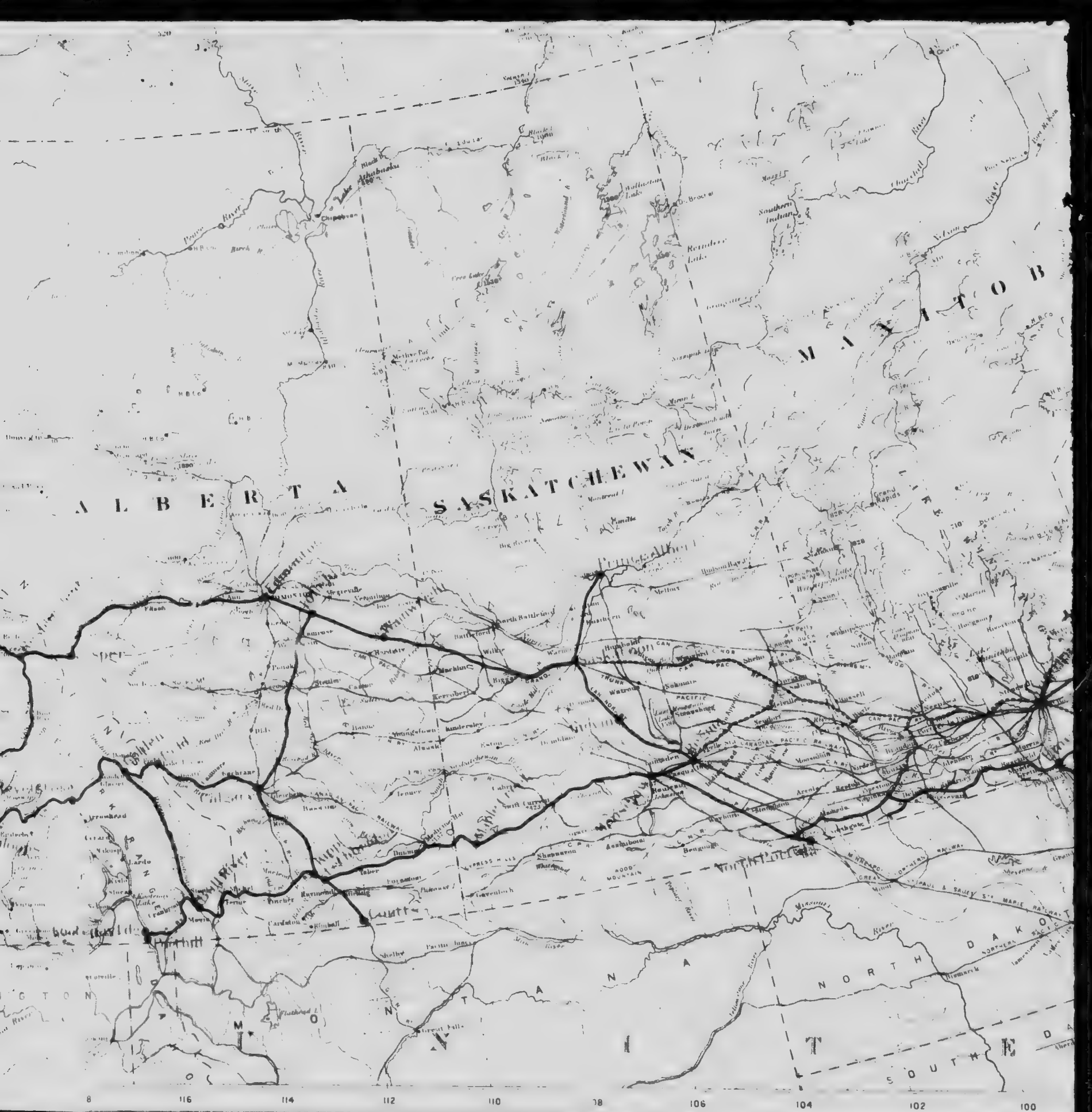


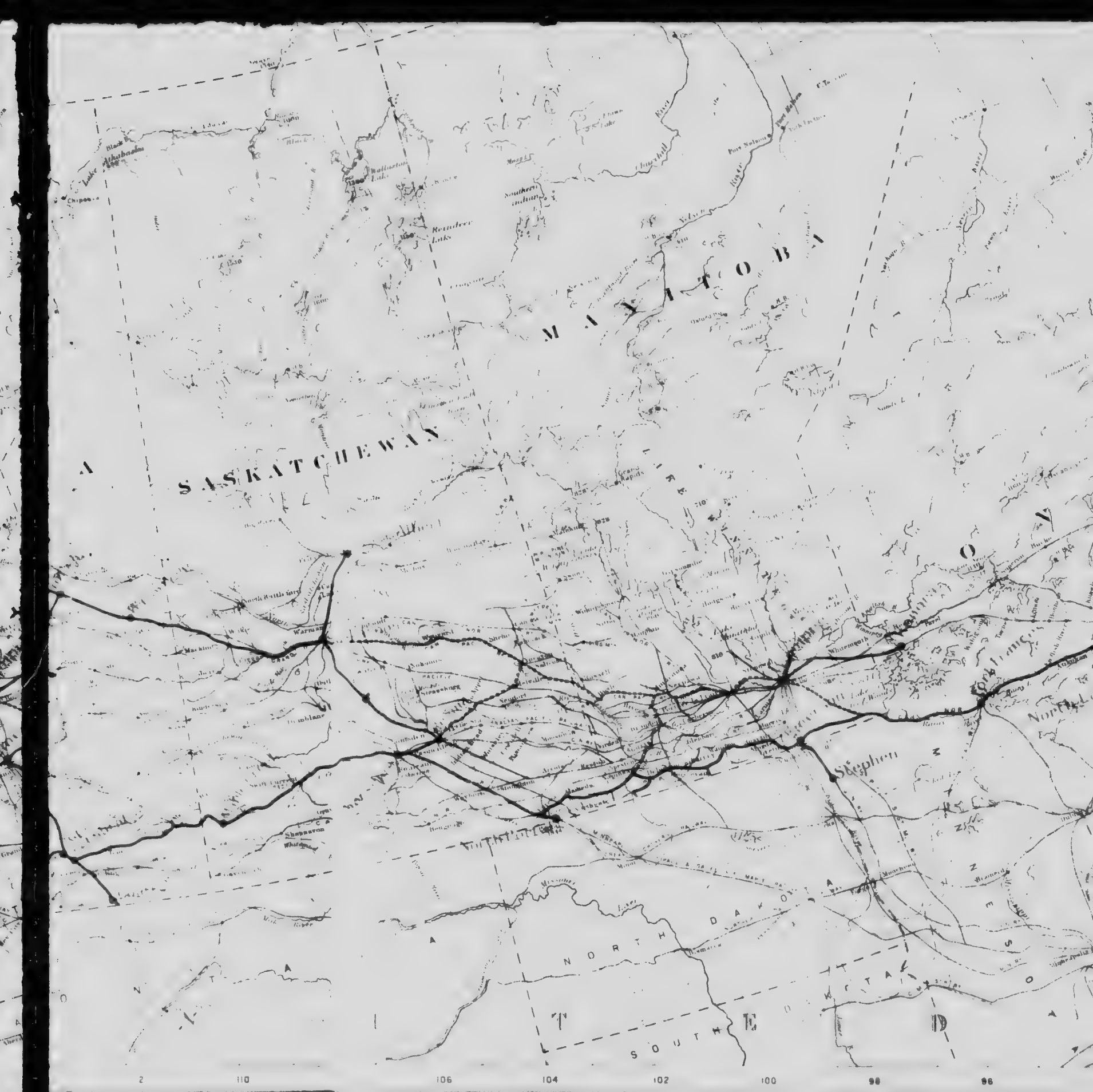




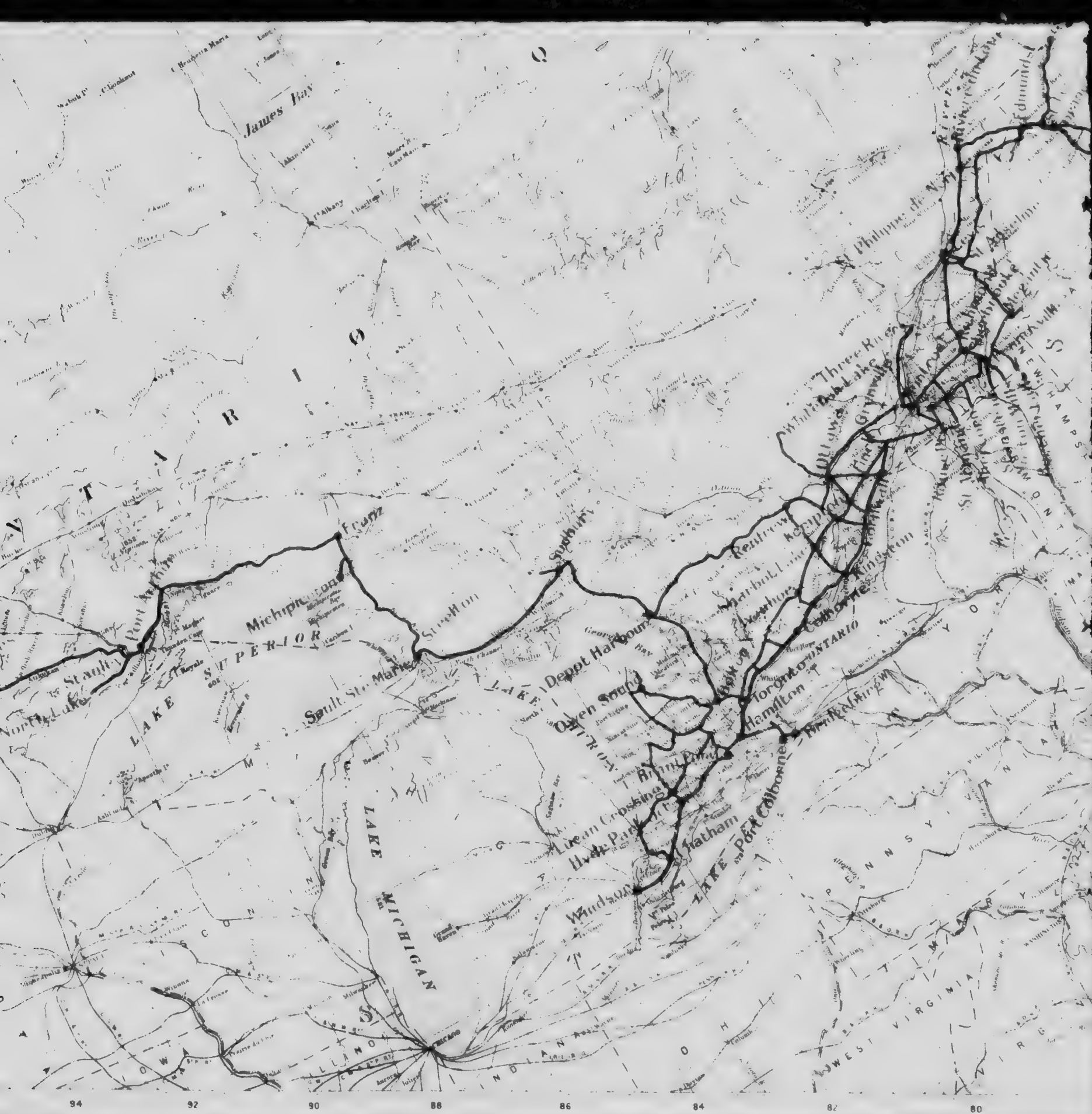


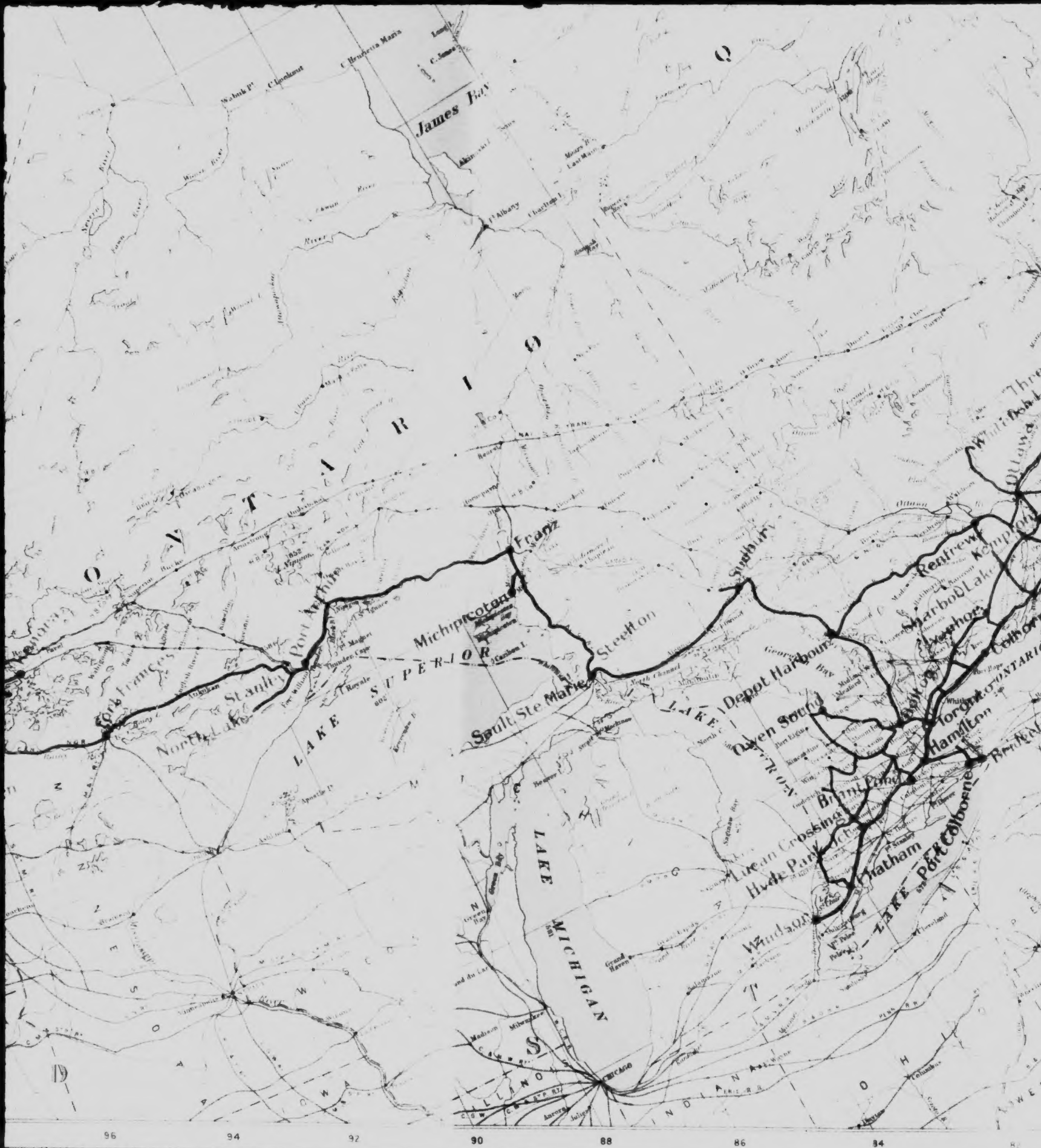




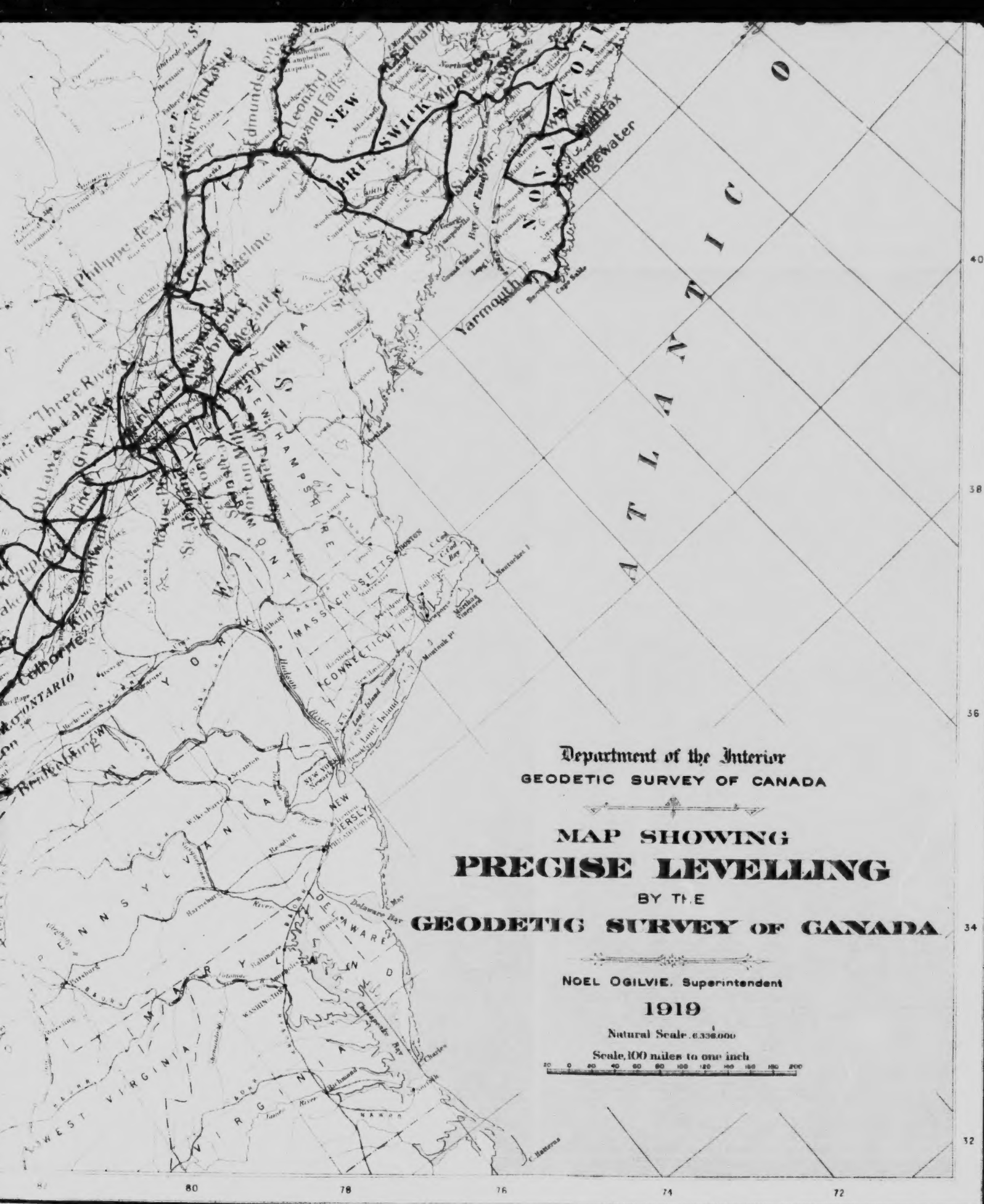


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Department of the Interior
GEODETIC SURVEY OF CANADA

MAP SHOWING
PRECISE LEVELLING

BY THE
GEODETIC SURVEY OF CANADA

NOEL OGILVIE, Superintendent

1919

Natural Scale $\frac{1}{6336000}$

Scale, 100 miles to one inch



